

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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30 East Van 20 Tincroft

100 Glenroy 203 Tolgus Consols

100 Goredale and Merilyn 110 United Mexican

100 Great Holway 20 Van

35 Great Laxey 12 West Chiverton

130 Grogwinlon 108 West Craven Moor

100 Hultafall 200 West Pateley Bridge

225 Llanrwst (£2 10s. fully paid) 100 West Tankerville

140 Leadhills 100 ditto Preference

150 Llanrwst 50 West Wye Valley

200 Melyn Moor 100 Wheel Agar

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Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.*—No. LXXXVII.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal).
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SECTION V.

MASONRY AND BRICKWORK.

The German technical expression mine walling (*Grubenmauerung*) has a much more extended meaning than is expressed by the literal translation. The use of stone in olden times appears to have been chiefly for the purpose of building dry walls for the support of open spaces, which would otherwise have consumed an unnecessary amount of timber, and more lately in the place of timbering for walling the sides of shafts; and hence it is that all kinds of brickwork, or masonry, used underground to prevent the ground from falling is classed under the term walling.

According to Lottner walling was only employed in the earliest times for the lining of shafts, and first in the 16th century walling was made use of in levels and adits; for example, the Princess adit, at Schneeberg, executed about the year 1562, and in Freiberg in 1591. It is probable, however, that dry stone walling was made use of in mines from a much earlier date. In some parts of Spain the levels of some of the mines supposed to have been worked by the Romans or Moors are kept open by means of dry stone walls, erected on both sides of the level, the roof being formed by means of granite slabs leaned against each other. The walling practised in olden times appears to have been restricted chiefly to dry walling, the arching of the mouth of adit levels, and to have been in most cases more or less incomplete.

In dealing with this division we shall consider first the materials, and then the walling of levels and shafts. The materials used may either be got from the mine itself, and consist of naturally formed stones, dressed or undressed; or artificially prepared materials, as bricks from clay, found sometimes at the mine, more generally at the surface; and slag bricks, made by running slag into rectangular moulds. In many cases the stones are simply laid upon each other, in others they must be held together by some binding material, this being almost exclusively the case with bricks and other artificially prepared material; undressed stone, on the contrary, being generally piled up loose. To distinguish these two methods the former is called wet walling, and the latter dry walling.

For dry walling, and where it is not required that the wall shall stand any great length of time, almost any stone or rock which breaks off in tolerably uniform thick slabs can be employed. The most usual case in which such stones can be used is for building the walls of packs for pack gates in collieries. The uniform thickness of the stones ensures that they shall form a comparatively stable wall. Stones which break only in round, uneven, and irregular shaped pieces are worthless for walling, at most for filling in the inside of pack walls. Where this wall will require to withstand some considerable pressure, and to last for some length of time, it is requisite that the stones should possess hardness, and be capable of being easily formed into rectangular slabs or blocks. In those districts where sandstones, grits, &c., are abundant these will be found suitable. Gneiss, clay slates, mica schists, and limestone, from the facility with which they may be split into suitable shapes, are often employed in mining for walling purposes. With regard to sandstones, clay slates, and some other rocks, these though otherwise suitable may be unfit for walling purposes, owing to the readiness with which they succumb to the weathering action of the atmosphere and moisture. It is on this account that the clay slates of younger formations, and sandstones which have been quarried near the surface, are comparatively worthless; the former, however, if of a very argillaceous character, may be employed for making bricks; the latter fall from together as loose sand.

Bricks, according to Lottner, must possess the following properties:—1. They must possess sufficient hardness and compactness to resist breakage by transport.—2. In order to admit of being laid evenly and regularly they should have smooth flat sides and sharp edges.—3. They should attach themselves firmly to the mortar when set in it, for which reason they should possess some degree of porosity (to the extent of holding 1-15th of their own weight of water); hence glazed bricks are of little use, and slag bricks find only a limited application.—4. They must be easy to work—readily broken in a given direction, without splitting through the whole mass of the brick.—5. They must withstand the weathering of the atmosphere and rain.

The clay from which the bricks are made should be free from substances which will interfere with the homogeneity and the exact degree of porosity required. Carbonate of lime not only renders the bricks more liable to melt in the ovens, but leaving behind caustic lime, the latter becomes dissolved under access of water, and the brick becomes exceedingly porous. A similar result is caused by the presence of large quantities of pyrites in the clay, which being oxidized during the burning of the bricks, becomes soluble under access of water. According to the more or less argillaceous character of the clay it is advisable to mix it with sand, the amount varying from 1/4th to 3/4th. The bed of clay is usually collected in heaps, which by means of the spade is turned over and over again with a plentiful use of water, until the mass is rendered homogeneous, and of the necessary plasticity.

When the clay has thus been prepared, with the addition of sand when necessary, it is formed into bricks. This is effected by the means of a rectangular frame, or box without bottom, which is laid on a flat board, or table; a lump of clay from the well mixed heap on the table is filled into the mould, and pressed down by hand. The excess of clay is pushed or scraped off by drawing a flat board across the top of the mould. The brick thus formed is laid on to a drying floor, which is first strewn over with ashes or brick dust from the ovens, to prevent the brick sticking to the ground. Similarly to prevent the brick from sticking to the mould in which it is formed the mould is dashed over with water, occasionally with sand or brick dust.

The size of bricks in Germany approximates very nearly to that usual in this country—9 in. long by 4 1/2 in. broad by 2 1/2 in. thick. Since the brick contracts on drying and burning, it is necessary to make allowance for this (i.e., the moulds are made somewhat larger than the above dimensions). According to experiments made at the State brick works at Joachimsthal, the following results as to the contraction of bricks on drying and burning were obtained:—

Clay mixed with 1-4th of sand contracts per foot from 1-5 in. to 1-75 in. Mixed with 1-5th sand, contracts from 1-6 in. to 1-92 in. Mixed with 1-6th sand, contracts from 1-9 in. to 2-08 in. Bricks are formed not only by hand but extensively by machines. A good workman will produce from 7000 to 8000 bricks per day, 11,000 to 12,000 being produced per day by machines. Pressed bricks have the advantage of being more compact, possess smoother and more regular faces, and sharper edges.

Although the form of bricks is generally that of a parallelepiped the bricks used for lining shafts are generally formed with curved surfaces, to suit the curvature of the shaft; and, more rarely, for arching they are formed slightly wedge shaped.

After the bricks have been thus formed and dried on the drying floor, so that they are stiff enough to be readily handled, they are either piled in large heaps on the ground or in specially constructed kilns. When laid in heaps on the floor the bricks are piled so as to form flues, along which the flames or hot air pass to the different parts of the pile, and by stopping or opening these the heat can be regulated in the heap. The number of bricks in a pile varies from

5000 to 500 000, and according to Lottner from 1-50 to 2-70 hectolitres of coal are required for 1000 bricks. The loss per cent. on overburnt and imperfectly burnt coal varies from 10 to 25. The diminution of cubical contents by contraction amounts to 14 per cent., added to which 11 per cent. as the loss of clay, &c., or a total of 25 per cent., from which the quantity of clay required per 1000 bricks can be calculated.

The following description of the various binding materials is translated from Lottner's work. Ordinary mortar consists of caustic lime and sand. The lime is first burnt, during which it loses water and carbonic acid up to the amount of 45 per cent., according to its purity. When the limestone is impure, and contains sand or clay, great care is required during the burning, otherwise the great heat may give rise to the formation of silicates when the lime burns dead, and does not dissolve on the addition of water. The lime is burnt in kilns, the construction of which varies considerably, principally according to the nature of the fuel; coal is usually placed in layers alternately with the limestone. The coal used is generally of the poorest character. More recently the kilns have been constructed with exterior firing.

According to the nature of the burnt lime, fat and poor lime are distinguished; the lime used for making mortar is generally denoted as white lime. The first difference is distinguished more readily during the slaking of the lime. Fat lime is that which effervesces more thickly, and increases considerably in volume; poor lime is that by which the effervescence is more rapidly over; the former will take a much larger quantity of sand than the latter. The increase in volume varies between 1-4th and 4-4ths, sometimes as 14-4ths. The slaked lime can only be kept under a covering of water or sand.

If the lime is only slaked by sprinkling water over the heap (which is recommended for hydraulic lime), or if the lime is left exposed to the air, the increase of volume is but slight, and the lime so slaked must be used immediately.

The sand which is added to the lime is to give a greater surface of contact, and to prevent cracking of the mortar on drying. It should be free from decomposing particles, and if necessary should be previously washed, it ought to leave no dirt in the hand. The more angular the sand is the better. The equality in the size of the grains is not necessary, though, of course, they should not be greater than the probable thickness of the joints of the brickwork; hence the sand is first passed through a sieve with openings 1/4 in. to 3/4 in. square. The amount of sand added necessarily varies according to the quality of the lime, generally from two-thirds or three-fourths or three times the quantity of lime, the extreme limit in some mines being ten times, which is decidedly too much.

As regards the theory of the hardening of mortar, it appears from numerous experiments, especially more recently those of Schröter, Bauer, Vogel, and others, taken in conjunction with those of Fuchs, that under favourable circumstances and easy access of carbonic acid, especially in a moist atmosphere, a neutral carbonate is formed in a comparatively short time; in fact, that there is often more carbonic acid present than appears necessary for the neutralization of the lime, which must then be put to the accounts of other bases; moreover, that the complete neutralisation of the lime does not lead to an increase in the hardness or compactness of the mortar, but, on the contrary, often a decrease, since a substance more like chalk than marble is produced. Such an explanation has already been previously given by Fuchs. In the inner part of the wall, where the mortar is more shut off from access of carbonic acid and moisture, the change often proceeds most slowly and in an incomplete manner, so that a crystalline semi-carbonate of lime is found. In addition, the lime seems to show some signs of having reacted on the sand, forming silicate of lime, which, however, is immediately decomposed on free access of carbonic acid, and, consequently, is formed in but small quantities. The amount, however, increases with age when carbonic acid is prevented free access. The compactness of the mortar becomes less when carbonic acid has sufficient access to form neutral carbonate of lime. As examples the following analyses of mortar are added:—

	From the Bastel at Vienna.	In the Bürger-Cavalier at Vienna.	From the Red Tower in the Bastel.
Age of mortar.	660 years.	546 years.	330 years.
	Per cent.	Per cent.	Per cent.
Soluble silica	10.40	7.53	3.98
Sand	32.50	37.00	45.30
Lime	23.52	25.04	17.40
Magnesia	8.50	5.33	9.92
Clay	2.56	2.20	3.42
Oxide of iron	1.56	2.08	4.25
Carbonic acid	16.24	18.20	10.90
Water	1.48	2.49	5.49

In the last example the lime had become completely converted into carbonate of lime.

ROYAL SCHOOL OF MINES.

The list of prizes awarded and associateships granted, contained in the prospectus of the Royal School of Mines just issued, appears to show that the institution is making satisfactory progress, for in the session recently ended no less than 20 students have qualified themselves for the associateship. The Duke of Cornwall's scholarship seems to have been discontinued since 1874-5, and this naturally raises the question whether his Royal Highness has abandoned this small encouragement to mining because at the present time it is unfortunately depressed? It is widely known that the most exacting mine lords in the western counties are the Duchy of Cornwall and the Duke of Bedford, but it has sometimes been thought that this has arisen from the management of the affairs of these great personages being left in the hands of subordinates, who care nothing for the reputation of their employers provided they keep up the incomes of their estates, no matter who may suffer, but in so important a matter as the withdrawal of a scholarship which produced excellent fruits during the 25 years it was awarded, it cannot be supposed that action would be taken without the express direction of the principals. It is to small matters such as this that may be usually traced the commencement of ill feeling and disaffection which in other countries has led to the overthrow of Governments and extinction of dynasties, so that the reason of the discontinuance of the award should, in the interest of the School, at once be made. If it has been anywhere stated it has not come to the knowledge of the public generally, and most people supposed that the vacant lines for 1875-6 and 1876-7 were merely the result of no candidate being sufficiently qualified, as in the case of the Edward Forbes medal in 1868 and 1869, but the continued blank naturally calls for an enquiry into the cause of the omission—whether the scholarship has really been withdrawn or whether the instruction given in the School is so degenerating that no students are brought up to the necessary standard?

But that the standard of instruction is well maintained can scarcely be doubted, for no change has been made in the teaching staff, and the ability and energy of each and all of the professors is established beyond question. Mr. Warrington Smyth, M.A., F.R.S., the character of whose lectures on mining and metallurgy is familiar to the readers of the *Mining Journal*, is Chairman of the committee of professors by whom the Royal School of Mines is conducted, and Mr. Trenham Reeks continues to give his usual care and energy to the registrarship. The value of Dr. Percy's lectures on metallurgy (and the importance of Mr. R. Smith's laboratory instruction under his direction, should not be passed over without notice) is well known. As a lecturer on general natural history no one could be more popular than Prof. Huxley, whilst Dr. Frankland as lecturer on chemistry gives the utmost satisfaction to students, as also does Prof. Guthrie as lecturer on physics. The lecturer on applied mechanics is Mr. Goodere, who may be regarded as a worthy follower as a teacher of that subject of Thomas Webster, and like him is a barrister-at-law who studies detail, with a legal accuracy that is of vast importance when imparted to students who intend to apply their knowledge in the workshop. Mr. Goodere's work on patent cases connected with inventions displays exact acquaintance with mechanical details, and cannot fail to increase the

student's confidence in his lectures. Prof. Judd, who for the last few years has occupied the chair of geology was prepared for the duties by a considerable amount of experience as an officer of the survey, and has shown that he knows how to turn that training to useful account for the benefit of the students, and an equally favourable opinion can be expressed of the teaching of Mr. Edgar, the lecturer on mechanical drawing. Altogether the School offers great attractions to those for whose advantage it was established; and although the fees are high as compared with some other institutions offering similar facilities, these may be much diminished by diligent students by the exhibitions and scholarships open to them.

SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS

An ordinary meeting of members was held at the Midland Institute, Birmingham, on Sept. 5.

Mr. Wm. North, President, in the chair.

Among those present were—Messrs. Henry Johnson (vice-president), Joseph Cooksey, John H. Cooksey, Job Tomson, Robert Calderwood, W. H. Duignam, W. Mc. G. Compton, James McEwen, J. Withinshaw, John M. Fellows, John Field, B. Ridgway Smith, W. F. Davis, James Lindop, Frederick W. North, W. C. Walker, Richard Latham, George Taylor, Thomas Parton, George Jones, James H. Price, J. F. Addenbrooke, James Roberts, Daniel Rogers, W. B. Collis, Henry Johnson, jun., Edward Foley, Isaiah Foley, James Harris, Thomas Webster, D. Whale, and Alexander Smith, C.E., secretary.

The minutes of the last general meeting were read, and confirmed. Mr. FREDERIC W. NORTH, M.E., F.G.S., then read the following paper entitled "KIMBERLEY DIAMOND MINE, SOUTH AFRICA," illustrated by drawings and specimens.

The writer of the following notes having been engaged to inspect the coal fields of the Cape of Good Hope, on behalf of Her Majesty's Government for Cape Colony, availed himself of the opportunity of visiting the territory of Griqualand West, and it has been suggested that a few remarks upon the diamond fields of that colony may be neither uninteresting nor unimportant to the members of this institute. The knowledge of the existence of diamonds in the country near the junction of the Orange and Vaal rivers, South Africa, had been known some years before the discovery in July, 1871, of the famous deposit for these precious stones now known to the whole civilised world as the Kimberley Diamond Mine. This great mine, with the neighbouring ones called De Beers, Du Toit Pan, and Bultfontein, all about 3500 ft. above the sea, are situated in Griqualand West, about 500 miles from the coast of Cape Town, and 375 miles from Port Elizabeth, upon a tongue of land formed by the junction of Vaal and Madder rivers (south latitude 28° 40', east longitude 25° 10'), only a few miles west of the boundary of the Orange Free State, and about 50 miles north-east of the Orange river at Hope Town. Near this place on the banks of the river the magnificent diamond known as the Star of South Africa was found by one of the natives upon the surface of the ground whilst tending his master's sheep. This splendid diamond, belonging to the Countess of Dudley, is 4 1/2 carats in weight, perfect in colour and brilliancy, and at present value per carat such a stone is worth (according to the tables prepared by Mr. David Jeffries) from 30,000 to 34,000. It is very singular indeed, and a strange fact, that although this diamond was amongst the first, perhaps the very first, not one so large has been found since to approach it in whiteness and lustre. The four mines already named lie so closely together that a circle having the diameter of 4 miles would enclose them all, and produce rough diamonds of the value of at least 2,500,000 per annum. But in addition to these mines, many others have been, and are being, worked by diggers, who obtain a more or less precarious livelihood, and this is especially the case with the men engaged at the alluvial washings on the banks of the Vaal river. The rumours of diamonds being found here and there in this region naturally attracted many British subjects and other Europeans, as well as large numbers of natives to the "El Dorado," and it having become an established fact that diamonds did exist in such quantities as to permanently attract and support a large population, it was deemed advisable by Her Majesty's Government to take the necessary steps for the establishment of law and order, and the protection of life and property, by annexing the country, which was accordingly done by a commission from this Government addressed to the Governor, Sir Henry Barkley, K.C.B.

This Royal Commission was followed by addresses to Sir Henry Barkley from both Houses of Parliament in Cape Colony, dated respectively Aug. 5, 1871, Aug. 8, 1871, intimating that pending the adjustment of certain disputes as to the boundaries of the said territory, and the passing of the law for the annexation of it, they the said Houses of Parliament decline to act in the matter, and requested him to take and adopt such measures as might appear necessary and practicable for the maintenance of order among the diggers, as well as for the collection of revenue, and the administration of justice. Meantime the chief (Nicholas Waterboer) had presented a petition to Sir Henry Barkley praying that he and his tribe of Griquas inhabiting this part of the Griqualand West should be taken under the protection of Her Majesty's Government, and that they were willing to become British subjects. In order, therefore, to administer law and order without further delay, Sir H. Barkley, in a proclamation dated Oct. 27, 1871, declared Griqualand West to be British territory, and founded the colony bearing that name; and this same proclamation declares that by reason of the continued refusal of the Orange Free State to submit the disputes as to boundaries to any reasonable course of settlement, Her Majesty is compelled to determine the said boundary line between the said territory and the Orange Free State upon the best evidence which she has been able to obtain, and the Kimberley Diamond Fields were henceforth a part of the British Empire.

It is not the intention of this paper to review the history of all these remarkable deposits, and the rapid development of them, for with the exception of a few general remarks, attention will be directed to the Kimberley Mine only, and from it alone a good insight into the diamond mining carried on there can be obtained. The farm Voormitzigt, upon which this mine was discovered in July, 1871, is the usual size—probably about 8000 acres. The mine was first known by the name of the Farm; afterwards it was called Colesberg Hopje, from a little mound or hill that was in the middle of the deposit. By-and-bye it was known as New Rush, and finally as Kimberley Mine, containing 420 claims, which are laid out exactly square, with equal sides of 31 ft., having uniform areas of 961 square feet, in all about 9 statute acres, and from this small area rough diamonds to the value of about 12,000,000, have already been extracted. It is reported that a native from the neighbouring De Beers Mine found the first stone, and within a short time after diggers from all the neighbouring mines which were then in operation rushed to the spot. Now, it happened that this find was upon a private farm, and not upon Crown lands; but in 23 hours the site was rushed upon, and in about a week 1000 or more diggers and Kaffirs were at work, and ready to pay the usual tax of 10s. per month upon the claim which they had chosen. It is provided by the Mining Laws, rule 3, section 3, that when a new digging is discovered the Inspector or Overseer of Claims, who shall be appointed by the Government to superintend such diggings, shall proceed as soon as possible to the spot for the purpose of registering the claim. Much litigation soon followed as to who was the rightful owner of the farm, and as to the legal right to the precious stones, for in the neighbouring Cape Colony, which was quoted as a precedent, the minerals reserved to the Crown when the farms are granted. It was not until this mine was well developed that all litigation was ended, and ceased upon the authorities of Griqualand West purchasing the sole right to the farm, with all the minerals contained therein, from Alfred Ebdon, Esq., for the sum of 100,000, according to terms.

The busy scene at the commencement of this mine defies all description. All the roads were maintained in good order and level with the original surface in accordance with a mining law which

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergstrath Dr. von Grodenack, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

† Lottner's "Manual of Mining," p. 490.

compelled the diggers to maintain such public ways, and for that purpose claimed a servitude of 7 ft. 6 in. of ground in every claim. By an arrangement shown on the maps this servitude was claimed alternately on the east and west sides of every claim, so that the two strips of land each 7 ft. 6 in. wide adjoining each other made public roads 15 ft. wide from north to south of the mine every 20 yards. So long as all digging was upon the surface this was an admirable arrangement, and provided a free way for carting out the diamondiferous earth from the most central claims to the floors and machinery for dressing it. These were of course arranged outside of the digging area, and were generally represented by the rude washing machine, unless indeed the work was not being done by the more rude and wasteful method known as the dry process, which was simply sorting as well as possible without the aid of water. It is worth noticing here that the early spoil heaps left from this dry process have nearly all been worked over again, and hundreds of thousands of tons of this refuse which at the early date of which we are speaking were abandoned as worthless, have since been manipulated with the more improved washing machinery to considerable profit. It was of course impossible for the regulation of the roadways to be kept long in force, for the excavations right and left of them soon became both deep and dangerous to the crowded traffic along them. By-and-bye, too, either from accident or intention on the part of the owner of the diamondiferous earth over which these roadways passed, the solid ribs across the mine became thinner and thinner, and at last a positive collapse occurred at the weakest places, causing a yawning chasm over which the owner of that portion had to construct some kind of rude bridge, so that the general traffic should not be impeded. The number of these bridges soon increased, for the ribs of valuable earth were continually being scraped and cut down, until at length these public roadways were carried chiefly upon bridges thrown from block to block of the diamondiferous earth. At this time the crowding and crushing to and fro had reached its height. The holes right and left of the roadways had become something like deep wide channels, with occasional gaps beneath the bridges, which at these points united one channel with that running next to and parallel with it. In these channels and cuttings 20 or 30 ft. beneath the surface crowds of men, black and white, were cutting down and scraping and digging, so that material could be sent out upon carts to the dressing-floors. Every conceivable device, such as ladders, planks, wheelbarrows, ropes, buckets, &c., were in use to hoist the earth out of the deep holes up to the roadways until about August, 1872. At that time, owing to atmospheric exposure and the effect of rainy seasons, the blocks of earth supporting the bridges decomposed, and almost the whole of them suddenly collapsed and fell down into disconnected heaps, utterly destroying all means of communication for carts and wagons. This mode of conducting the work had been carried on quite long enough, however, for before this last event it had often happened that cart and horse, or bullocks and wagon, with its load had fallen over either to the right or left into the abyss below, to the great danger of the unsuspecting diggers who at the time chanced to be working beneath.

When the roadways fell in the whole mines and mining community were in a state of the greatest confusion, for none of the claims except those around the edges of the mine could be worked for want of proper roads, and at this time it was estimated that the whole mine could have been bought from the disconsolate diggers for about 150,000*l*. The actual number of owners at this time was about 1600, few having whole claims, many more only having half shares, and not a few the eighth or sixteenth part of a claim. Soon, however, light dawned upon them, for someone's ingenuity had suggested a wire strained tight from the edge of the mine down to some fixed post or iron bar driven into the solid ground of the claim, so that a galvanised bucket could be passed up and down it by means of a little wooden pulley, to which the bucket was attached, and with a coil of rope for a winding rope the claim could again be wrought upon. These little wooden pulleys and cord were in immense demand, and one man who bought up the first lot from the coast sold them at 1*l*. each, and the rope at 1*s*. per foot. Everything was most expensive, but great profits were being made when the ground could be brought out and men could afford to pay. It was at this time that the most humorous anecdotes and most startling cases of reckless expenditure occurred. The wells being dry men washed their hands in soda-water; they ordered dry monopolies in order to have one glass, and left the remainder of 20*s*. worth for anyone who cared to drink it. They frequented gaming halls, and lost and won hundreds and even thousands of pounds in a night, and it is said that money and rolls of bank-notes were so carelessly placed in the tents of that canvass town that after a storm of wind, when tents would be blown away, advertisements have appeared in the local newspaper offering a reward for a stray roll of notes which had "licked" from the advertiser's tent. Not a few accidents and broken heads resulted from the new mode of hauling, for the unceremonious falling of buckets from the guiding wires was of no uncommon occurrence, but that did not deter the rapid development of the aerial tramway in all its phases, and in the course of another year the mine presented a new appearance, with all the roadways cleared away, and substituted by a labyrinth of wire and wire ropes, forming the unique roadways, which have been so much improved that they are now nearly perfect, and form the usual mode of hauling from all the mines in the neighbourhood.

At this time many curious customs existed among the diggers. A large and valuable stone would be found by some digger very fortunate in having such luck, but unfortunate in immediately having innumerable friends, who at once claimed acquaintance, and hurried off to the nearest canteen, where unlimited champagne was placed to the account of their fortunate and newly-found friend, who rarely or ever complained, and was clearly able to pay. The custom of "jumping" claims, or appropriating ground, which for some reason or other had been lying idle, was much in vogue. Men would have to abandon their claim on account of sickness, or perhaps death had overtaken them. Possibly the ground at the moment was unprofitable to work, and from want of success, and many other reasons, the owner of a claim would leave it. In the midst of such a busy scene a vacant piece of ground would soon be noticed, and some one at the end of seven days would make application for such ground to the mining inspector, who was empowered to grant a new title to the first applicant, providing the ground had been vacant, or taxes had been unpaid, for eight days; or, in case there were two or more applicants, to the one who would pay the highest bonus for it. Many claims so acquired are now worth 5000*l*. or 6000*l*. each.

Extraordinary stories are told as to the way in which various stones were tested to ascertain whether or not they were really diamonds, the most ridiculous being the mode tried by a blacksmith named Roughtman, who, with more knowledge of his trade than of his large diamond, put it upon the anvil to test by the hammer, the first heavy blow scattering his 60-carat stone in all directions. With the exception of the first few feet of reddish sandy soil, the diamondiferous earth, or matrix of the mine, to the depth of 60 or 70 ft., was of a yellowish grey tinge, and yielded large profits; but at that point it suddenly changed to the present blue ground (samples), and many were so afraid that the bottom had been reached that they sold their claims at the best price offered. If they had made careful examinations of the matrix they would have found that there was no difference in the composition of the soil, except in its colour, and that it was more harder and compact. Although it has been said that at that point there really was a layer of unproductive ground, it was very thin, and there was really no cause for the panic occasioned by the change of colour, and from that time until now, when the mine has attained its greatest depth—240 ft., in claim No. 313—it has remained the same, and is more productive of diamonds per cubic yard of ground than at any former period.

It is more difficult to describe than imagine the general aspect of the mine as it is now. Over the irregular bottom of this excavation 2500 native workmen and 150 European overseers are actively engaged in getting and filling the matrix and debris into buckets of all sizes, from those only 12 in. deep to the larger ones containing, in diamond fields phraseology, a load, or 16 cubic feet. When filled they are then sent off swinging overhead along the innumerable in-

clined wires to the depôts on the surface, where the soil is emptied out into a box passed down shoots into carts holding 16 cubic feet, and these are sent away by a pair of horses at a brisk trot to the pulverising floors, to be prepared for the last operations of washing and sorting out the diamonds from the refuse of the highest specific gravity (samples). The heat during the summer is intense, for the rays of the sun are almost vertical, and no heat to modify it can reach the bottom of the abyss except whirlwinds, which bring with them blinding clouds of dust, making the situation more unendurable. Down in this uninviting hollow work is continued from 6 A.M. to 6 P.M. (Sundays excepted) by all the natives, who are closely watched by the overseers.

The cost of getting, hauling, and washing the matrix has always been excessive, and even now is much more than it should be, but this extra cost can easily be afforded, and will continue to be an inseparable evil so long as the claims are held by so many distinct owners. An amalgamation of them all into one confederation, in which they should each have exactly the same share as the Mining Board valuation of their interests would entitle them to, and governed by a board selected from and elected by themselves, would result in working cost being reduced 10 per cent., and ultimately 20 per cent. may be the anticipated saving from this concentrated action. Added to this advantage, gain would accrue to the owners by the produce being sold with care and without competition, instead of each owner now rushing into the local market with his diamonds, and competing with all his fellow-owners in making sales to the local merchants. The loss occasioned by each owner having to carefully plumb his boundary, keep the lines straight, the corners square, and in such irregularly-shaped lots to cut down all the ground that belongs to him, but take none of his neighbours, must be very considerable. Now that the earth is becoming more compact, and requires the judicious use of blasting material, this difficulty and consequent expense will become greater. A better idea of this work would be obtained by reference to the map showing the ownership of the mine, where the ground belonging to each owner is accurately shown, and the intricate and perplexing shape of each lot, with the owner's name, distinctly appears. Then each lot requires its aerial tramway buckets, winding apparatus, and separate staff for hauling purposes, unless the lot is too small to bear the expense, in which case the hauling is done by one of the adjoining proprietors, who charges from 1*s*. 6*d*. to 2*s*. 6*d*. per load for hoisting with a portable winding-engine a height of 200 ft. Such cases go on for some time in this way, but they cannot last, and the fate of such small proprietors is to be bought up by their more wealthy neighbours. Carting from the shoots at the top of the tramway is a source of immense cost, for all the diamondiferous earth and the debris has to be removed an average distance of 100 yards from the edge of the mine. The immense cost of removing some 10,000 loads per week by horses should be superseded by the use of locomotives running upon light steel rails, and all the floors for pulverising, and the washing and dressing machines also, should be upon neighbouring sites, so that the superintendence of them and the horse-power required for that purpose could be obtained and distributed more economically than is possible under the present system.

Let a glance be taken at the costs and profits under the present disadvantageous state of affairs, and take one instance, which is a fair criterion of the whole. Everything is calculated by the load of 16 cubic feet. A claim is said to yield so many loads per day, the matrix referred to in these loads contains an average value of diamonds, and it is said to be worth so much per load. The excavation, hauling, and washing of the diamondiferous earth is all done at so much per load, and the difference between the cost per load and the value in diamonds per load gives the profit to be realised from any particular situation, and it is from these data that the annual assessment is made for rating purposes. Two claims in the north-west corner, which are assessed at 8000*l*., produced in a few weeks 1650 loads, yielding diamonds to the value of 2658*l*., and claims in the centre, belonging to the same owners, of the value of about 20,000*l*., produced in a longer period 21,334 loads, yielding diamonds to the value of 27,000*l*.

ABBRIDGED BALANCE-SHEET.

1650 loads of earth, at 1 <i>l</i> . 6 <i>s</i> . 1-8 <i>d</i> .	
per load.....	£ 2,658 0 0
Gross cost of getting, hauling, and washing 1650 loads, at 6 <i>s</i> . 8 <i>d</i>	550 0 0 = £ 2,108 0 0
21,334 loads of earth, at 1 <i>l</i> . 6 <i>s</i> . 3-7 <i>d</i> .	
per load	£27,000 0 0
Gross cost of getting, hauling, and washing 21,333 loads, at 6 <i>s</i> . 8 <i>d</i>	7,111 6 8 = 19,889 13 4
Gross profit upon 22,984 loads.....	£21,997 13 4

These figures were taken from the books of the owners, and they may be relied upon for accuracy, and are rather below the best values obtained from prime blue ground, which is known to yield diamonds at the rate of 1*l*. 10*s*. per load, and costs about the same to get and work it. Other instances might be quoted, but these will be quite sufficient to show that South African diamond mining is assuming a more business-like form, and that the digger is no longer a man with a pick and a shovel indiscriminately groping in the blazing sun after a precarious fortune. At Kimberley that day has long been passed, and now the field is only open for capital and enterprise. There are many theories as to the origin of these South African deposits which it would be well at this point to note, because the writer believes they differ from any others yet discovered in the world, for here they are *in situ* certainly not at the actual point where they were first formed, but perhaps only slightly removed therefrom, whilst the diamonds of other mines are found in positions to which they have been drifted. Those found on the banks or in the beds of existing or ancient rivers may have been removed considerable distances from their original course by the action of streams. Each of the mines already named at or near the town of Kimberley have distinctly defined boundaries of reef, and within this limit is contained the diamondiferous earth, containing in its matrix most capriciously and irregularly placed, and yet with a very great degree of certainty, diamonds varying in size and colour. Beyond these boundaries of reef, which is nothing more or less than stratified shale, quite natural and regular, and does not contain a single diamond. They may and often have been found on the surface some distance from the diamondiferous earth, but all these may be called "rolling stones," for they have certainly been drifted from their original matrix and site during the period when these plains were subjected to denudation, but beneath the surface and in the stratified shales, of which the surrounding country is composed, no diamonds ever occur. Why is this? Why do these small areas—for we have seen that the Kimberley Mine only contains 9 acres—contain such enormous quantities of diamonds to whatever depth they have excavated, and yet the ground outside these defined areas never contains one? This ground has been pierced on every side of the mine, either by wells or shafts, and yet no trace of diamonds has been seen. The answer appears to be simply this. The diamond mines near Kimberley, and certainly this one bearing that name, exist only in the craters of extinct volcanoes, which were probably sub-aqueous when in an active state, and finally became filled with a semi-liquid material, containing detached pieces of fallen shale from the sides of the crater, much decomposed lava, together with the diamonds which would seem to have been injected into it from depths too profound to calculate with the slightest chance of accuracy. It is worthy of note that some of the diamonds now found in this matrix are broken pieces of larger ones, and as no signs of the pieces ever occur they could not have been formed at the exact spot where they now rest, because the detached pieces are never near them. Mingled also with this peculiar matrix are boulder stones of igneous rock, from 1 to 15 ft. diameter, and other deposits quite foreign to the matrix itself. During the excavation immense and peculiarly shaped masses, something like undulating sheets of rock, containing no diamonds, have been traced for two or three acres of the mine, and this has acquired the name of "floating reef" from the diggers, for all ground being different from the diamondiferous earth, whether it be the walls, or sides of crater, or floating

masses of rock mingled with the matrix, has been called by them and is now known by the name of reef.

[To be concluded in next week's Journal.]

THE D'ERESBY MOUNTAIN GROUP OF MINES.

The energy with which mining operations are being carried on in this locality, and the well-directed efforts which are being made to develop the four important mines comprised in the above-named group, are attracting, to a much greater extent than hitherto, the attention of mining capitalists. A few facts relative to the present position and future prospects of these valuable lead properties may, therefore, be deemed to be of interest to intending investors, and may to some extent serve as a guide to those who are unacquainted with the mineral capabilities of the district.

The present is an opportune time for referring to the subject, because, although the long-expected and earnestly-hoped-for recovery in the metal trade has not yet taken place, still there are symptoms that in the near future a greatly advanced price will be obtained for the produce of British metallic mines. From Stafford, and one or two other centres of the iron industry, the news comes of a briskness of trade, which is in gratifying contrast to the gloomy and depressing reports which have been received for the past three or four years; and experience teaches that a revival of trade in the iron industry of this country is invariably and rapidly followed by a corresponding recovery in the demand for the other native metals.

Before referring to the present condition of the workings on the mines one or two general remarks regarding the locality may not be out of place. The property is situated about 1½ miles to the south of the town of Llanrwst, in Carnarvonshire. The most superficial examination of the sets discloses the fact that for a long period, probably for centuries, the metalliferous character of the strata was known to and taken advantage of by the old workers for metals. On the surface numerous open-casts are met with, some of which extend a considerable distance in length; in some cases these have partially fallen in, or become choked up with the alluvial soil washed in by heavy rains, but the work of clearing them out would be easy. At several points on the sides of the hills are the openings of levels, most of which have been driven only a short distance, but sufficient to show that considerable quantities of lead must have been obtained. The openings of two or three shafts are still visible, evidently intended from their situation to intersect some of the levels below, but as most of the workings were carried on by individuals, or by small parties of miners, there seems to have been a total want of method in developing the property, each man, or party of men, driving or sinking on those points which contained rich runs of lead. Necessarily the result of this desultory system of working, and lack of combined effort, was that the miners were unable to cope with the water which collected as depth was attained; the workings were, therefore, abandoned one by one, and the traditions of the neighbourhood warrant the belief, and indeed the indications at the ends of the old workings prove, that in many cases the abandonment took place at points which were yielding rich returns to the workers.

Although for a long period the property was almost neglected by mining adventurers, its mineral riches have recently attracted the attention of influential and practical capitalists, and the operations which are now being conducted to develop systematically, economically, efficiently, and rapidly the mineral wealth of the mines will, there is the strongest ground for believing, result in placing them at an early date permanently on the list of dividend-paying British mines. There are at present four companies at work on the property—the D'Eresby Mountain, the D'Eresby Consols, the Clementina, and the Aberlyn; but it may be mentioned, in passing, that it is understood to be the intention of the directors of the D'Eresby Mountain to divide the northern portion of that set, and work it as a separate property, under the name of the Valley Mine. This would seem to be a judicious step, inasmuch as it is not only a natural division of the property, but after the division the area of the D'Eresby Mountain Mine will be amply large enough to afford work to the adventurers for, probably, a century to come.

Referring first to the D'Eresby Mountain Mine, the important feature which renders the prospect here so promising is that the great Gorse lode runs the entire length of the set, about 700 fms. On this lode two adit levels are driven—No. 4 and No. 5. These were commenced and carried some considerable distance by the old workers, and are now being cleared out. No. 4 adit has been entirely cleared, and in clearing a large body of ore was discovered which is now being worked, and stoping has been carried on from the roof of No. 4 nearly to the surface, and the lode continues to hold good. The width of the lode at the point where stoping has been carried on is no less than 26 ft. This level is continued in a westerly direction from this point on to the east and west lode, to a distance of 200 fms., and on getting under the flat surface the lode became very productive, so that the ground has been almost entirely stoped away from the surface down to that level by the old miners. In driving this level another large lode was intersected, known as the Hafna lode, which is 12 ft. wide; this lode has not been worked by the present company to any extent. In consequence of so much stuff being thrown down from the working of the large stope the way has been blocked, and working has been temporarily suspended till the debris is cleared away. Very little has as yet been done on this Hafna lode, but undoubtedly the driving eastward on this lode will be a grand speculation, inasmuch as it intersects the Fuchaslas lode, and eventually the great Gorse lode, about 40 fms. south of the present large stope. No. 5 adit was taken up about 200 fms. north of the entrance to No. 4 by the former workers, and about 16 fms. deeper. The present company has already cleared a distance of 140 fms., and it is hoped that in the course of a few months, or even a shorter time, it will get under the rich stope in No. 4. It is said that the old workers returned from above and below No. 5 as much as 100 tons of lead per month, and were sinking a sump below that level, and perpendicular to the stope in No. 4, by means of a water-wheel, which was erected in No. 5 level, but the timber above it not being sufficiently strong yielded to the pressure, and one night it collapsed, filling the sump and breaking down the water-wheel, which was the cause of their stoping, leaving a rich course of lead behind them. It may be mentioned here that at No. 3, on the east and west lode, the Gorse lode is intersected by a very promising east and west lode, containing fine stones of lead ore. This has been largely worked by the old miners, but an immense amount of stoping is still left standing. With regard to the Fuchaslas lode, this lode is parallel with the great Gorse lode, and considerable quantities of lead were sold from it by former workers. There are four adit levels driven on this lode, which are called No. 3*a*, No. 3, No. 2, and No. 1. These, with the exception of No. 3*a*, have all been cleared out by the present company. This No. 3*a* was driven first of all on the Fuchaslas lode, and then on the Hafna, which intersected Harker's lode in a westerly direction, and was communicated to a shaft from surface. At the point of intersection of these two lodes—that is the Hafna and Harker's—there was a good bunch of ore. Nothing has been done beyond that point. The object is to continue the level westerly from Harker's lode, to reach the junction of the Great Gorse lode with Harker's, at which point it is generally supposed that a rich course of lead is to be found. No. 3 adit, on the Fuchaslas lode, has been driven a distance of 80 fms. by the former workers, but the lead was lost in the forebreast. The present company, finding this to be the case, set to drive in another direction, and soon discovered the lode, and have been driving on it since through productive ground, varying in value from 5 cwt. to 1½ ton per fathom. The old workers had stoped extensively about the roof and also the sole of this level. In No. 2 nothing has been done except the clearing by the present company. A winze was sunk by the former proprietors to a depth of 6 or 7 fms., but, the proprietor dying, the work was stopped, leaving a fine course of ore in the bottom of the winze. A rise from No. 3 will be put up to communicate with the bottom of this winze, and open up good working ground. The No. 1 is driven altogether about 30 fathoms on the Llanrwst east and west lode, where it intersected the Fuchaslas lode, on which lode it has since been driven, and has been very rich in blende, and is now becoming productive of rich lead ore. Regarding the character of the lode it may be remarked that

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THURSDAY, SEPT. 12.—Market exceedingly quiet. Van, Great Lacey, and E
an weaker. Van, 17% to 18%; Great Lacey, 17% to 18%; East Van, 2%
%; Aberlynn, 11 to 12; Roma's Creek, 20% to 21%; Duff's Mountain,

to | of the strip, whereas in the present case the use of vertical groove

86, Coleman-street, London, E.C.

Baxes Domingo Mill, here we have now 28 heads ready for work, and the new boxes arriving at the surface will be in good working order. The foundations of the stamps stand good, and the centres of the water wheel are secure from further breakage. The embankment of the dam has shrunk after the rain, so that it cost during the month \$84 to fill it up again, which is now very strong and close together; and even now, in what is called the wet season, the dam has been found a great help, as yet there has only been a few showers here.

COLORADO UNITED.—Sept. 7: The agent's advices, dated August 19, to hand this ore by the engine, being long workings of the mine are all looking well, particularly the Union tunnel drift, which also shows signs of improvement. There is no course of good mineral on the hanging wall at the breast. The Union tunnel stops also is producing good ore, the average throughout the stop being over 3 inches of mineral (this will run nearly 2 tons to the fathom). The 8th level, stope No. 3, continues as good as ever, the mineral being of a fine quality. He also states—"I sincerely think that we shall cut the Brown lode now very shortly. The breast has decidedly changed, and from black granite we have now some nice quartz and oreive matter."

Sept. 7: The following is a telegram received this morning from the superintendent: "Product of mine for August—cash and ore broken for shipment, \$22,000.—MORGAN."

MINERAL HILL.—Mr. Plummer, Aug. 19: I have but little to add respecting our mining operations since my last. We have been obliged to suspend the Troy winze, and our level in connection therewith, on account of the bad air, but in a few weeks the weather will be getting colder, and then we can resume the work. The ore collection from the burrows is progressing as usual, and we are busy extracting the ore from the Star Chamber broken last month. I have set two tribute shafts below the main croppings, and the corner one from the Spencer and Republic Mines on a small rise, and the other from the Republic to give to the poverty of the ground I had to let them on easier terms than usual—one-sixth of the product to be returned to the company, and the milling charges reduced 85 per cent. All the rest of the conditions are the same as formerly existed.

JAVALI.—Extracts from manager's report:—Mine: 52½ wags were driven in the mine, the remainder of the extracted ore was, as usual, taken from the surface. A trackway, intended for a tramway, which runs on the same level as Pollock's Tunnel from the North end, and the expense of the tailings to the bottom of the mill, is a very short time a good supply of manto from there, which is very promising.

Mill and Remittance: I am extremely sorry to say that the rainy season, which I expected fully to set in during the past month, is still missing, and we have never had such a dry year as the present one. I did what I could to save firewood, but the rainfall being so extremely small I had to make use of the engine for 13 different days, having sometimes sufficient water for 25 stamps, and at other times not enough to run 10 stamps. The week, which luckily I had kept clear of any emergency, had to be made up pretty soon afterwards, but sometimes did not burn so well in the reed dry season. Therefore, the engine used 156 tons of wood, or more than twice the quantity required for the same amount of work otherwise should have done: 22 stamps (on average) worked 25 days, crushing 1870 tons of ore, which gave 508¼ ozs. of smelted gold, at an average of 5 dwts. 10 grs. per ton.

Tailing Mill: I set this mill to work first with one pan on the 6th, and let the second follow on the 12th, so both pans worked 40 days in all, treating 120 tons of concentrated tailings, which yielded 15 ozs. of smelted gold (say) 2½ dwts. per ton. On September 1st, I said that the experts of the tailings to the atmosphere and the turning them over several times oxydised the pyrite to iron oxide, a pale extent; this and the addition of some handfuls of salt to every pan had a good effect on the amalgamation, and I received an amalgam which not only in cleaning did not leave so much black stuff but retorted well. I had these 15 ozs. from 78¾ ozs. of amalgam, and it showed no difficulty in smelting whatever; these 15 ozs. are contained in the bar from the pans from the upper mill. I hope in the present month to be able to work all three pans, and then the result will be a nice addition to our remittances.—Receipts and Expenditure: The box of concentrates, weighing 100 lbs., sent me by Diego's men brought me the 91 ozs. of silver. The remittance is valued at 1800£, thus leaving a balance profit of 366£ 4s. 3d.

PANULICILLO (Copper).—The advices indicate that the operations in the half-year ending June 30 resulted in a loss of about 500£, an improvement on the result in previous six months (loss 299£ 9s. 11d.), which the board chiefly to economies effected by the company's manager at Panulicillo.

FORTUNA.—Sept. 4: Canada Inco's: The lode in the 120, west of O'Shea's, is letting out water very freely; valued at ¼ ton per fm. In the 30, east of San Carlos, the lode is improving, and is now presenting a better appearance; worth ¼ ton per fathom. The lode in the 50, west of Abercrombie's, is small, and yields good stones of ore, but not enough to value. The 60, west of Abercrombie's, is times poor, but there is a good lode slightly in advance in the level above. In the 50, east of Abercrombie's, the lode has decreased in value in the past few days, but still yields good rocks of ore; valued at ¼ ton per fathom. The 70, west of San Pedro, is being driven through a great length of sterile ground. In the 80, west of San Pedro, the lode is presenting a much better appearance than for sometime past; producing ½ ton per fathom. The lode in the 80, east of San Pedro, has not shown any improvement, nor does the top of the 70, east of San Pedro, is opening up a good length of very productive ground, yielding 1½ ton per fathom. In the 120, east of O'Shea's, the lode is large, and composed of quartz, carbonate of lime, and fine lumps of lead ore; worth 1 ton per fathom. The lode in the 100, west of Lowndes's, has increased in size, and the ground is very easy, and producing ¼ ton per fathom. In the 100, east of Lowndes's, the lode is split, each part yielding good stones of lead ore. In the upper part of the 90, east of Caro's, there is a good branch of ore, but the lower part is poor, and valued at ¼ ton per fathom. The lode in Fabio's winze, below the 50, contains good stones of ore, but is quiet; the lode in Pablo's winze, below the 110, the lode yields good stones of ore, but it is very wet for sinking, producing ¾ ton per fathom. The lode in Congress winze has slightly fallen off in value in the past few days; now worth ¼ ton per fathom.

Los Salidos: The 145, east of Taylor's, continues to open up a promising and productive lode, worth 1 ton per fathom. The 130, east of Taylor's, is being continued in broken and sterile ground. In the 121, east of Cox's, the lode is very regular, and promises improvement, now yielding 1 ton per fathom. In the 110, east of Cox's, the lode is very rich, and is being laid open at present, valued at 1½ ton per fathom. The lode in the 80, west of Palgrave's, is small to value, with good stones of ore, worth ¼ ton per fathom. The 50, east of Palgrave's, is passing through a hard bar of unproductive ground. Taylor's engine-shaft, below the 115, is being pushed on with a good pace of men. In Swaffield's shaft, below the 55, fair progress is being made. Bundry winze, below the 65, is holed to the 80, in the western boundary of Quinientos Mine. Nieve's winze, below the 65, is laying open very good ground, yielding 2 tons per fathom.

GINARCA.—Sept. 4: The lode in the 120, east of Santa Tomas, continues of a good length and showing promise, but is becoming poorer, owing to the fact that there are good stones of ore in the lode. In the 135, west of Santa Tomas, there is no improvement. The lode in the 100, east of Warner's, is open and easy for driving, yielding 1 ton per fathom. In the 115, east of Warner's, the lode is very wide, but at present destitute of ore. The lode in the 115, west of Warner's, is very large and loose, opening paying; worth 1 ton per fathom. In the 120, west of Peil's, a great length of rich lode was laid open in the past month, producing 2 tons per fathom. The lode in the 90, east of Peil's, is compact and regular, yielding 1 ton per fathom. In the 80, east of Peil's, a very valuable piece of lode was driven though in the present month, 2 tons of ore per fathom. In the 105, east of Peil's, is small at present, but valued at ½ ton per fathom. No. 224 winze, below the 105, is holed to the 120. No. 225 winze, below the 90, is going down in a very fine lode, yielding 2 tons per fm. The lode in the No. 237 winze, below the 105, is small, compact, and regular, worth 1 ton per fathom. The slopes yielded the usual quantity of ore in the past month, and we are now without any change of importance. The works at surface are kept on very regularly, and the machinery is in good condition. We estimate the raisings for September at 200 tons.

The lode in the 100, east of Taylor's, is much more loose and opens up, and lets out a great deal of water, valued at ¼ ton per fathom. In the 100, west of Taylor's, there is a wide lode spotted with ore, yielding ½ ton per fathom. The lode in the 50, west of San Adriano's, is small and at present unproductive. In the 60, east of San Victor, the lode is wide and easier for working, and of a promising appearance. There is no improvement in the 70, east of San Victor. The lode in the 70, west of San Victor, is small and poor. In the 60, west of San Victor, the lode is fairly sized, but in size and value. The 40, east of San Victor, has changed favourably in the past fortnight, raising 900 lbs. of ore per fathom. In the 30, east of air-shaft, the men are opening the south side where a good branch of ore has been cut into, yielding ½ ton per fathom. The 30, west of air-shaft, is quite unproductive at present. In the 40, south of San Carlos, the small lode has not yet been reached. The lode in the 40, east of Judd's, is much smaller in size and value than it was, yielding ¼ ton per fathom. In the 50, east of Judd's, a valuable piece of lode is being driven through, worth 3 tons per fathom. There is no improvement in the driving of the 70, west of Judd's, but the lode is showing signs of improvement, owing to the fact that the men are doing other work preparatory to sinking of a new level. The lode in Hidalgo's winze, below the 85, is a large, open, and promising lode, worth ¼ ton per fathom. In Ortiz winze, below the 40, the lode is very strong, with good stones of ore, worth ¼ ton per fathom. The lode in Pascual winze, below the 20, is strong and regular, but is not so productive as it was, valued at ¼ ton per fathom. In Gigante's winze, below the 60, the lode has improved in the past few days, now worth 1 ton per fathom. Carmono's winze is in advance of the 100, north level, and the lode is showing signs of improvement, yielding 1 ton per fathom. Corral Lado, east of air-shaft, lode is rather small, but is showing signs of improvement. The weekly weighings of ore were kept up very steadily in the past month, and there is not much alteration in the slopes at present. The machinery is in good condition, and all surface works are going on satisfactorily. We estimate the raisings for September at 200 tons.

LUSITANIAN.—Sept. 4: Pailha Mine.—Levels on Basto's Lode: The lode in the 200, east of Taylor's shaft, is 4 ft. wide, worth 1½ tons of ore per fathom. The 190 and 180, east of Taylor's shaft, are being extended on the 5 ft. to 6 ft. giving stones of ore. The lode in the 160, west of alide, is 4 ft. wide, and worth 2 tons of ore per fathom.—Stopes on Basto's Lode: From the two stopes above the 200, east of Taylor's shaft, we expect to raise this month 10 tons of ore; from the three stopes west of Taylor's shaft, from the 200 fathom level, 2 tons; from the slope east of ditto, above the 190 fm. level, 8 tons; and the slope above the 180 (said).

VIRNBERG (Copper).—B. K. Roskilly, Sept. 11: Setting Report: Hadley's Engine-Shaft: We are busily engaged in clearing the 140 metre level, south of shaft, necessitated through the water being in the bottom part of the mine during the fixing of the plunger-lift at the deep adit level; excellent progress is being made in clearing the stuff, and by the end of the week we hope to resume stopping the back of this level, where the lode is worth 20¢ per fathom for copper ore. The 120 metre level, to drive south of shaft, to six men, at 70 marcs per metre; the lode in the 120 metre level, to drive south of shaft, to six men, and is worth 20¢ per fathom for copper ore. To cope in the back of this level, to six men, at 30 marcs per metre; the lode is worth 18¢ per fathom. No. 2 stope, to six men, at 35 marcs per metre; the lode is worth 20¢ per fathom. To rise in the back of this level, by six men, at 45 marcs per metre; the lode is worth 8¢ per fathom. To stop the back of ditto, on the footwall of the lode, to six men,

yield solid stones of lead ore. Grogwinion, 2½ to 3; Great, 18 to 18½. D'Eresby Mountain, 75 to 85; the prospects here are

looking better at No. 5 adit—one of the most important points in the mine. D'Eresby Consols, 10 to 11; Clementina, 1½ to 1½. Aberlynn, 10 to 11; rich lead is coming into the blende. South Darren, 2 to 2½; the mine is looking well. They have sampled 45 tons of good copper ore, and sold this week 40 tons of lead at 15½ ds. = 608. Glenroy, ½ to ¾; the sinking below the 80 is going on steadily, and the lode is now 4 ft. wide, showing more lead and blende than for a long time past. East Van shares are flat at 2½ to 3; the cross-cut has now been driven 11 fms., with a few spots of lead in the end, but not enough to value. The agent is going to put four men to drive west in a part of the lode which contains a mixture of blende and a little lead ore.

Bluch United, ½ to ¾; Richard's shaft is being sunk below the 90, and between the two portions of a large lode, which will be proved at the next level. Clara Consols, 5 to 5½; the lode in the 15 end, east of the trial shaft, has much improved, and producing saving work for lead. Leadhills, 2 to 2½; Tyn-y-Fron, 1½ to 1½; West Chiverton, 5 to 6. Wye Valley, 1½ to 2; this mine has sold 30 tons of lead, at 9½ ds. per ton. West Wye Valley, 2½ to 3; the sampling, for sale on the 16th, is 40 tons of lead ore. Caron, 2 to 2½; Harrington Moor, 1½ to 2; Mawston, 55 to 60; Red Rock, 2 to 2½; St. Harmon, 2½ to 3½. Van, 17½ to 18½; in the 105 west the lode is worth 9 tons of lead ore per cubic fathom. The winze in the 90 west, about 30 fathoms in advance of the 105 end, is going down in a good lode. Pateley Bridge, 3½ to 4½; the lode here continues worth 8 tons of lead ore per fathom. Rookhope, 14s. to 16s.; the mine has sampled 40 tons of lead.

FOREIGN MINES.—Cape Copper, 29½ to 30½; the directors have declared a dividend of 17s. 6d. per share, free of income tax. Chontales, 10s. to 15s.; the advices show a profit of 171 for the month of July. The cost produced 400 ozs., valued at 1030½. Costs, including 135½ to construction account, 859½. Javali, 6s. to 8s.; the return for July was 506 ozs., valued at 1300½, against a cost of 994½. Pitauqui, par to 1½ prem.; Santa Barbara, 1½ to 1½; Colorado United, 4½ to 4½; Don Pedro North del Rey, 10s. to 12s. 6d.; Eberhardt and Aurora, 4 to 4½; Flagstaff, 7s. 6d. to 12s. 6d.; Frontino and Bolivia, 2½ to 2½; New Zealand Kapanga, 1½ to 1½; Chicago, ¾ to 1½; Last Chance, ¾ to 1; New Quebrada, 1½ to 1½; Pestarena, ¾ to 6s.; Port Phillip, 10s. to 12s. 6d.; Richmond, 8½ to 9½; St. John del Rey, 280 to 290; Blue Tent, 2½ to 3½; Placerville Gold, 2 to 2½. Hultafall, 3½ to 4½; the ends in the 15 and 25 are said to be rich in lead and blende.

The Market for Mine Shares on the Stock Exchange remains much in the same state as last reported. The amount of business doing is restricted, but prices have not declined. To-day there has been a little doing in Tankerville, at prices from 3½ down to 3, but this is the only British mine in which any transaction is recorded. In connection with colonial and foreign mines, Colorado United has been dealt in at 4½ to 4½; Eberhardt and Aurora at about 4½; New Zealand Kapanga at 1½ and 1½; Richmond at 9 and 8 13 16ths; and United Mexican, 3½ and 3½. It was pointed out last week that increased profit to mine adventurers was likely to result from the general introduction of rock drills, and this week very striking evidence is published as to the enormous speed of working that can be attained with some of them. The St. Gothard Tunnel report for August shows that McKean's drills in the Airole end made no less than 94 fms. 2 ft. of progress in the month, or an average of more than 3 fms. per day. Such a result has never before been approached, the drills coming next in speed being the celebrated Winchester (American) drills, which at the Boston Waterworks tunnel during May and July, 1875, made 26 fms. of progress in each month. The McKean drill was the first in the market and the first advertised in the *Mining Journal*, and it is gratifying to find that after such long experience it so well maintains its ground. The exact details are given in another column.

The mineral resources of the Transvaal are about to be brought prominently before the British public, and great confidence is felt that the undertaking will prove a success. The handsome and constant dividends paid for many years past by the Scottish Australian Investment Company are too well known to require comment; the Scottish Australian Mining Company's regular 15 per cent. dividends satisfy most shareholders; and even the Adelaide Land and Gold Company—with which a highly respected correspondent of the *Mining Journal* (the late Charles Hancock) was connected, but which was abandoned and put into liquidation through the quarrelling and impatience of the shareholders—was made to yield on the winding up of the company not only enough to return to the capitalists who invested in the undertaking the full amount which they subscribed but also a small interest in addition—had the concern been carried on it would, doubtless, have proved as remunerative as either of the Scottish Australians. It is now proposed to launch a land and mineral company for the Transvaal, and if care and judgment be used in the inauguration, and integrity be the inflexible rule of the management (the suicidal principle of loading the capital being avoided), an enterprise may be established which will be a boon to the colony and a profit to the British capitalist engaged in it. Not only gold, lead, cobalt, copper, and other metals are found, but there is an abundance of coal and iron which could readily be worked. It is stated by authorities well acquainted with the Transvaal that the manufacture of iron there would unquestionably prove remunerative, as there are unusual facilities both for working and sale. The mineral resources of the Transvaal will be fully referred to next week.

The Clogau (Welsh Gold) report states that during August the improvement referred to in the last report has fully maintained its value. The Britten pans worked 700 lbs. of ore, giving a bar of gold weighing 74 ozs. 15 dwts.

The West Tankerville Mining Company is to be resuscitated by the formation of a new company, with 30,000 shares of 1½ each (of which 9000 will be 6 per cent. preference shares), to take over the property and plant from the liquidators. The fixed plant and machinery are to be transferred in consideration of the issue of 9000 6 per cent. preference shares of 1½ each in the new company to the holders of the 3000 preference shares of 3½ each in this company, and 3000 ordinary shares to the holders of such preference shares, in discharge of all claims in respect of over interest thereon; and, secondly, the loose plant, machinery, tools, implements, stores, and effects are to be transferred in consideration of the payment by such new company of all the debts and liabilities of this company, including the costs, charges, and expenses of and connected with the liquidation of this company, and carrying on operations at the mine pending the completion of such transfer; 12,000 of the ordinary shares in the new company are to be allotted fully paid, as a bonus to the subscribers for the remaining 6000, and to be offered in the first instance to the shareholders in this company; and it is proposed to authorise the liquidators to carry on such operations at the mine as they may in their discretion consider necessary pending the completion of these arrangements, and the meeting convened for Friday will be competent to pass such resolutions as may be considered necessary for the purpose of carrying out and giving effect to the above suggested arrangements, or any alteration or modification thereof which may be considered desirable.

Richmond, 8½ to 9; probably owing to the announcement last week that the furnaces were to be shut down for six weeks for repairs no telegram has been issued up to this morning; indeed, there can be little utility in the telegrams until the furnaces are at work again. In the reference to Richmond matters in last week's *Journal* the remarks were, by brevity, made scarcely clear; what it was intended to convey was that the trustee, whether an individual or a company, was in such cases as those under consideration, by a generally recognised legal fiction, assumed to occupy a position which would be quite justified in stating on oath that he was sole owner, joint owner, or otherwise, as the case might be, although in fact, the real owners of the property were the persons whose trustee he was. With regard to Mr. Brereton himself, it should be stated that his knowledge of the laws of the States of Nevada and California is not inconsiderable. During the last eight years he has been largely connected with the working and management of companies in these States; he was, moreover, general manager and one of the trustees of one of the largest companies on the Pacific Coast, and had a great deal to do with obtaining the Act from the Legislature of California, which enabled aliens to hold and inherit property in that State. It appears that he also had considerable experience in the formation and management of companies in America, and understands the laws of the States and Territories, as well as the machinery of Congress. The report of the manager (Aug. 21) is encouraging. He says the No. 7 chamber below the 400 is very much improved since last week. The No. 10 is about the same. On the whole the mine is looking better than for some time past. The foundation for the air-compressing machinery is nearly ready, so that as soon as received it will be erected.

The latest advices from the Bonanza Comstock Mines state that the Consolidated Virginia was yielding daily at the rate of from 200 to 250 tons of ore, and that the ore was being sent to the mill as fast as extracted. Owing to the drying up of the water in the Carson river the Morgan mill had been obliged to stop, the Bacon and Trench mills at Silver City being substituted in its place. The California daily yield is from 250 to 270 tons of ore. There is no change whatever in any portion of the ore-producing section of the mine. The heading of the Suro Tunnel is now running easy in porphyry and quartz, showing streaks and bunches of good ore, completing the best air circulation yet effected in the deep workings of this section. The heading is to be continued beyond when deemed advisable, but the probability is that the large water drain

throughout the bottom of the tunnel will have to be made before running into any west wall water risks. After nearly 10 years of constant drain upon the resources of himself and friends, Mr. Suro has at last begun to turn the tide the other way, having concluded a contract with the Julia Mining Company, by which the tunnel is to be practically tested. A drift 1500 ft. long is to be run from it to connect with the Julia shaft; the object is to explore the ground and provide a cheaper method of extracting the thousands of tons of low-grade ore that the Julia Company have developed. The tunnel company are to receive \$100,000 for running the drift, and have sold to the mining company the right to any ore bodies, ledges, &c., that may be encountered within the lines of the tunnel grant. It is thought the whole can be run by December.

Last Chance, ¾ to 1; the Utah advices favourably refer to this mine, and wish the company every success, trusting a "big strike" will soon be made to remind the shareholders of their palmy days, when in a short period \$300,000 worth of high-grade ore was turned out, averaging from \$80 to \$100 per ton. Salt Lake City will rejoice to see a grand success, and the English shareholders' hearts again gladden with dividends. It wants nothing but one or two good successes to restore confidence.

Sierra Buttes, 1½ to 1½. Plumas Eureka, 2½ to 3; the returns for July show a profit at the old mine of \$4258, and at Plumas Eureka of \$13,489; both are low on account of the extra cost, amounting for the former to \$2477 for water-power, and \$3354 for the latter on new works.

Hultafall, 3½ to 4½; the latest report from the mine is that the 15 and 25 fm. levels continue as rich as when last reported upon, both for lead and blende. With regard to the dressing, an important communication will be made to the shareholders next week. The difficulties with respect to the blende dressing have, it is said, been overcome. This was only a question of time. The fact that the Vieille Montagne Company were turning out upwards of 50,000 tons of precisely similar ore per annum was a demonstration that the task could be accomplished.

Lead Mines continue without noticeable feature, but a fair amount of business had been transacted. Van, 17½ to 19½; the 105 west continues to open out a splendid course of ore, still worth 9 tons per cubic fathom for the part carried. Other points of the mine looking well and surface operations progressing satisfactorily.

Grogwinion, 2½ to 3; the manager's monthly report states that Nos. 3 and 4 lode in the deep adit level continue to open out good stopping ground, and that No. 3 lode, in the 68, is also looking well. The stopes in the upper levels have improved, and the prospects altogether are satisfactory. The report concludes with the remark that "we shall soon be in a better position than we ever were." Wye Valley, 2 to 2½; prospects at this mine continue to improve; 30 tons of lead were sold last month, and a similar quantity will be ready this month. The lode in the 22 east has greatly improved in character, and is more promising than it has been for many months. The end of this level being now within 15 fathoms of reaching Tippet's shaft it is expected that a communication will soon be effected, when a good run of ore will be opened up. The winze below the 22 east continues to produce excellent ore, and this point has yielded the greater portion of the recent sales. It has already been sunk 13 fms. through a fine course of ore, worth about 2 tons per fathom; and, although at the date of the last report the water had rendered further sinking temporarily impossible, this is to be at once remedied by the fixing of a pump, and the winze will then be at once continued down to meet the 46, now driving towards it. The bottom or 46 fm. level is making good progress, and in about 30 fms. more driving will come under the bunch of ore which proved so very rich in the 10. West Wye Valley, 2½ to 3; the mine is now clear of water, and active operations resumed. The lode in the 40 is expected almost daily to yield an important discovery. Other points going on satisfactorily. A parcel of 40 tons of lead has been sampled for sale on Monday.

Caron, 2 to 2½; good progress is making here. The machinery is all fixed, and will be set in motion as soon as some small matters of detail are completed. It is as effective a set of powerful dressing and pumping machinery as any in the district, and will all be worked by water-power, including the admirably arranged self-acting dressing machinery. It is expected that everything will be in readiness for a start by Saturday next. There is a very nice heap of ore at surface ready for the crusher to begin upon, and as two stopes have already been started in the roof of the 10 there is likely to be abundance of ore to keep it going. The prospects underground are excellent, a communication has been effected at the 10 between the two shafts, and perfect ventilation thus obtained, besides which a long length of productive ore ground partly developed by the old workers has thus been proved, and from the reserves already laid open good returns can be made. It is expected that within a month Caron will enter the market with its ores, and its prospects are all that could be desired. South Cwmystwith, 2½ to 3; good progress is making, and prospects are encouraging, especially on the Penallt lode. St. Harmon, 2½ to 3½; the third cross-cut towards the newly discovered portion of the lode at the 67 east is making good progress, but is not yet into the lode. It is believed that the productive part of the lode is bearing away from the level, so that this cross-cut is likely to take somewhat longer than the one in which the recent discovery was made. The prospects continue good, and any day may bring the news of further important discoveries, meantime great interest is felt in the matter. Mawston, 55 to 60; good progress is making, and prospects are encouraging. Red Rock, 2 to 2½; the new discovery in the 10, east of new shaft, continues to yield plenty of ore, and prospects of a great extent of rich ground being opened up in this portion of the property are excellent. The bulk of the last parcel sold (40 tons) was raised from this point, as owing to the dry weather the deep levels could not then be worked. The mine is, however, now free from water, and all operations are going on steadily, and a great deal of valuable ore ground is being developed.

Pateley Bridge, 4 to 4½; there is no change reported from this mine. The 30 east, on Rake vein, maintains its value of 8 tons per fathom. Other parts as per last report. Smelting progressing steadily. Harrington Moor, 1½ to 2; fresh discharges of carbonate of lead have been made at various points, and others are expected.

Subjoined are the closing quotations:—

Ashton, ¾ to 1; Devon Great Consols, ¾ to 1½ prem.; East Caradon, ¾ to ¾; East Van, 2½ to 3½; Glyn, ¾ to ¾; Great Lacey, 18 to 19; Hingston Down, ¾ to ¾; Leadhills, 1½ to 2; Marke Valley, ¾ to ¾; Parys Mountain, 4s. to 6s.; Pateley Bridge, 4 to 4½; Penruthal, 3s. to 5s.; Roman Graves, 7½ to 7½; Tankerville, 3½ to 3½; Tincroft, 4 to 6; Van, 17½ to 18½; West Ashton, ¾ to 1; West Basset, ¾ to 1; West Chiverton, 5½ to 6½; West Pateley, 2 to 2½; Wheal Grenville, 1½ to 2½; Almada and Tiritio, ¾ to ¾; Birdseye Creek, ¾ to ¾; Blue Tent, 2½ to 3; Colorado, 29½ to 30½; Cedar Creek, ¾ to ¾; Chontales, 10s. to 12s. 6d.; United, 4½ to 4½; Don Pedro, 9s. to 11s.; Eberhardt and Aurora, 4 to 4½; Exchequer, ¾ to ¾; Flagstaff, 7½ to 7½; Frontino and Bolivia, 2½ to 2½; Hultafall, 3½ to 4½; I.X.L., ¾ to ¾; Kapanga, 1½ to 1½; Last Chance, ¾ to 1; Oregon Pref., 4 to 4½; Placerville, 2½ to 3; Richmond Consolidated, 8½ to 9; St. John del Rey, 280 to 290; Sierra Buttes, 1½ to 1½; South Aurora, ¾ to ¾; Tecoma, ¾ to ¾; United Mexican, ¾ to 4.

PATELEY BRIDGE—GREAT DISCOVERY.—This great discovery continues to fully maintain its value, the end (Rake vein) in the 30 east still being in a course of lead ore, worth 8 tons per fathom. Smelting is being carried on regularly.

CARDIGANSHIRE LEAD MINES.—A company has recently been formed, and the capital privately subscribed, for the purpose of taking up and working a large extent of mineral land on the celebrated Lisburne estate, and including one of the most productive mines in the whole district. The property is situated in the richest part of this renowned mineral zone, and is contiguous to Grogwinion, Frongoch, Red Rock, and other productive mines, the sales of lead from which cannot have been far short of 50,000 tons. It is held on favourable terms, the royalties being low, and there being a good supply of water-power steam will not be at all necessary. Active operations are to be commenced forthwith. The capital was quickly subscribed by some gentlemen largely interested in the adjoining mines, who have gone into the concern as a permanent investment, and from all we can hear their profits are likely to be very large. Mr. John Kitto is to be the local superintendent, and the general management will be undertaken by Messrs. George Ross and Co. The property is extensive, being about three miles long and several miles wide, and is traversed by mineral veins of great value.

TO COLLIERY PROPRIETORS.

TENDERS FOR GAS COALS.

THE DIRECTORS OF THE SHREWSBURY GAS-LIGHT COMPANY are desirous to RECEIVE TENDERS for the SUPPLY of the best description of SCREENED GAS COALS and CANVEL for a period of three years, commencing March 25th, 1879, and terminating March 25th, 1881. The coals to be as free as possible from sulphur, bats, blind, refuse, and dirt, and shall be weighed upon the company's machine (240 lbs. to the ton), and delivered free, by and at the expense of the contractor, at the London and North-Western or Great-Western Goods Station, Shrewsbury.

The estimated quantity required yearly will be 5000 tons of coal, and 500 tons of cannel, in addition to that already contracted for. Tenders, specifying the conditions at which they are to be raised, must be delivered on or before the 24th day of September inst.

The lowest or any tender will not of necessity be accepted.

S. B. DARWIN, Secretary.

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MESSRS. EKINS AND CO., STOCK AND SHARE DEALERS, 14, QUEEN VICTORIA STREET, LONDON, E.C. See this week's report of SOUTH D'ERESBY. The shares are rising fast in value. Bankers: Metropolitan.

INVESTMENTS IN CANADIAN PROPERTIES. HERBERT C. JONES, M.A., BARRISTER AND ATTORNEY, SOLICITOR IN CHANCERY, 39, ADELAIDE STREET EAST, TORONTO, CANADA.

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ENGLISH RAILWAYS, GOVERNMENT BONDS, &c.—INVESTORS and SPECULATORS for the account should DEVOTE ATTENTION to these SECURITIES. Our Selections for 1878 have risen 30 per cent., allowing of profits of 300 per cent. on the small requisite outlay. This is authenticated.

Selections for the season about commencing, and full particulars of Messrs. HUME and Co., Crosby Hall Chambers, Bishopsgate street, London, E.C. Enclose stamp.

DEVON AND CORNISH MINES.—It is worthy of notice that none of the mines recommended by R. J. RUTTER have failed to yield satisfactory results; and investors will do well to write to the undersigned before investing, as he has a few shares in some very choice properties to dispose of.

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Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

SIR.—The Queensland Investment and Land Mortgage Company (Limited), Old Broad-street, demand 1s. for each certificate over and above the 2s. 6d. transfer fee. It is a very exceptional, not a customary charge. Can any reader inform me if it is a legal one? If so, for what purpose is it made? It cannot be for stationery; that would be excessive, and directors of companies generally, whether prosperous or otherwise, protect their own interests in that infallible document, the Articles of Association. The shareholders' position is simply *pro et con*—therefore, I fail to see who is benefited.—A SHAREHOLDER.

EAST CHIVERTON.—*Errata*.—In Capt. R. Southey's report of Sept. 5 read, "the lode still continues to look very well, and worth at the present time fully 1½ ton of lead per fathom;" not ½ ton of lead per fathom, as reported in our last publication.—GRANVILLE SHARP, Secretary.

Received.—"H. M. C."—"T. H."—"Constant Reader" (Barrow)—"E. M. R."—"P. B."—"A. H."—"J. H. W."—"J. D." requires information respecting Capt. Goddon, who was once agent for the Mining Emigration from Devon and Cornwall—"B. T."—"J. B." (Paris)—"Shareholder" (Wheat Grenville)—"Eureka"—"One Interested"—"Shareholder" (Huntington Copper Company)—"Constant Reader" (Dublin) should write to the Secretary of the company—"M." (York): We will endeavour to obtain the information—"W. H."—"Weekly Reader."

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, SEPTEMBER 14, 1878.

NOXIOUS VAPOURS FROM COPPER AND LEAD WORKS, COKE OVENS, &c.

It is evident that Government purposes introducing more stringent measures than are at present enforced with respect to works giving off noxious vapours, so that persons interested will do well to look out for the new Bill which will be brought forward during the next session of Parliament. The Alkali Acts of 1863 and 1864 have worked very well, and been the means of abating nuisances that were alike injurious to health and vegetation; in some instances the nuisances being found capable of being profitably utilised. But legislation in trade matters, more than almost any others, can be carried too far, and our own manufacturers may by Act of Parliament be placed in a position that would render them unable to compete with other countries where greater freedom exists in the carrying on of various manufactures. We certainly consider that every reasonable effort should be made to prevent the escape of noxious gases; but we do not believe in the drawing of a hard and fast line, for what could be easily effected at one place might at another be only capable of accomplishment with the greatest difficulty and at very serious expense. We are also of opinion that the less trades are hampered by Acts of Parliament so much the better, so that nuisances should be left more to the local authorities than to direct imperial interference—for the latter, as a rule, adds considerably to the cost of the products that are so guarded and fenced, not only taxing the consumers, but causing loss to the employer in the shape of profit, and to the workmen in the shape of wages. This was the case with regard to the Mines Regulation Act, which came into operation in 1873, for owing to some clauses which did not materially relate to the safe working of the collieries the cost of producing a ton of coal was increased by sixpence to a shilling, which at the present time would be considered a very handsome profit indeed. Yet since the passing of that Act, which was to perform such wonders, we have had as many fatal colliery accidents as before, and perhaps in quicker succession, whilst the price of coal has fallen so low that coalowners allege that they are scarcely clearing expenses, and the colliers state that what with short time and reduced wages they can barely get enough to live upon. We do not say that this is the result of the Act itself; but the probability is that it has in a slight degree at least helped to bring about the present state of things, and this is the opinion of most of those who are subjected to its regulations. We have, however, merely drawn attention to it as showing that legislation for the purpose of attaining a certain object is often defeated when put to the test of practical application. But we further desire to see that the legislation founded upon the report just issued by the Royal Commission on Noxious Vapours will be such as not to press with unnecessary severity with the carrying on important works and manufactures by requiring certain things to be done that would involve a heavy outlay, or it may be the entire reconstruction of extensive premises. Where gases can be prevented from escaping by ready appliances at a moderate cost, increased discipline, and vigilance, or by being profitably utilised, as in most instances we believe they can be, then by all means let such be done and enforced as far as possible. Such has been effected in the case of blast furnaces—a great saving in fuel has taken place by the gases being taken from the top, and made to heat the boilers, stoves, &c., so that in many districts but few of the open-topped furnaces are now to be seen. With regard to coke ovens something similar is now going on, for a system is now being adopted at several places, that known as Aitken's patent, which gives little or no smoke, whilst the superfluous heat and gas can be used for raising steam, or for several other purposes.

The recommendations of the Commissioners imply a considerable staff of inspectors and analytical chemists, together with a chief inspector. Dry and wet copper works (so far as the latter carry on operations corresponding to these, if dry copper-works), as well as lead, cobalt, nickel, spelter, tin, galvanising, salt, and some other works, as well as works for the manufacture of dyes from coal tar derivatives, are to be placed under the supervision of inspectors appointed under the new Act, who are to have a power of entry and inspection, their proceedings to be reported annually to the Local Government Board. But the powers of the latter board are to be still further increased, for it is to be empowered from time to time to fix by provisional order, to be confirmed by Parliament, a standard of escape, or to require the adoption of the best practical means for preventing escapes. Such extensive powers as these are not likely to meet with the approval of those who are to be affected by them. In many of our works the processes are both secret and valuable, and are most carefully guarded by the owners, who will not allow even their own workpeople to become acquainted with them, much less any of the outside public. Yet the inspectors are to have a power of entry and inspection, and, of course, may obtain information of great worth that may be made known to others, to the serious injury of the person or persons in possession of a secret. To our thinking this is anything but fair, and we feel strongly of opinion that it should be modified in the interest of inventors and those who by a large outlay or by scientific investigation have become possessed of a secret which is of value to them, but which would cease to be of value were it made known to others. Of course, it will be said that the persons who are likely to be appointed inspectors would be above taking advantage of their position for obtaining a knowledge of what was not intended to be made known to them or any other persons; but all we can say is that human nature is, as it always has been, fallible.

Coke ovens, that are also to be subjected to inspection, have been treated more leniently than the works we have alluded to. Ovens in existence at the date of the new Act will be required to adopt the best practical means for preventing escapes of black smoke and for diluting sulphur compounds, a period of three years being allowed for compliance with the requirements. The same will also be required in respect to all furnaces built after the passing of the Act. There will not be much difficulty in complying with the recommendation of the Commissioners so far as coke ovens are concerned, for at very many collieries neither the smoke nor the gases are allowed to escape, whilst improved appliances can be readily attached to the old beehive ovens, to make them nearly all that can be desired.

As to sulphate of ammonia works, tar distilleries, and gas liquor works, that are to come under inspection, they are simply required

to adopt the best practical means for preventing the escape of sulphuretted hydrogen, which nearly all of them we believe do. Chemical manure works are also placed in the same category, all that is asked being that they shall provide practical means for preventing the escape of noxious and offensive gases. The escape of acids, however, is treated in a more specific manner. It is recommended by the Commissioners that the escape of more than one grain of sulphur in the form of any of its acids contained in one cubic foot of exit gases, or of more than half a grain of nitrogen in the same form as to acid and gas, is to be an offence under the new Act. But these limitations do not apply to the production of sulphuric acid from sulphur gases evolved from the treatment of sulphur compounds where otherwise the sulphur gases would escape uncondensed into the atmosphere. The exit gases are to be collected from the exit flue of the chambers before entering the chimney, whilst the deposit of alkali waste so as to cause a nuisance, or the allowing of it to come in contact with acid drainage, are all to be offences under the proposed Act.

Such are the principal recommendations of the Commissioners, and, subject to the objections we have taken, the carrying out of the greater part of them will not be a matter of very great difficulty, and the result we believe will be greatly to the advantage of the public health, which is of paramount importance.

IMPROVED BLOWING-FAN.

M. Guibal, the inventor of the well-known ventilator for mines, which was described in last week's Journal, has recently applied his scientific attainments and extensive practice to the construction of a blowing-fan, suitable for cupolas, smith's hearths, the ventilation of the holds and cabins of ships, public buildings, &c. The principal objects to be aimed at in such a fan are strong blast—or high pressure,—large and steady volume, economy in driving power and wear and tear, and the minimum of noise or vibration. These conditions appear to be fully realised by M. Guibal's invention. By permission of the Admiralty one of these fans was tested last year at Her Majesty's Dockyard, Portsmouth; this fan has since been purchased by the Admiralty, and the following results were obtained in competition with another make of fan of the same diameter. Diameter of each fan is 48 in., driven by belts from a stationary engine;—

Revolutions of fan per minute.	Pressure in inches of water-gauge at outlet of fans.	Guibal's.	Lloyd's.
100	0.25	—	—
200	.95	—	—
300	1.35	—	—
400	2.1	—	—
500	2.95	—	1.85
600	4.45	—	2.85
700	7.0	—	3.7
800	9.75	—	5.0
900	12.0	—	6.4
1000	12.9	—	7.7

It was found that the increase of pressure suddenly diminished in each fan after a speed of from 900 to 1000 revolutions had been attained. This is probably due to the slip or surging of the air in consequence of the fans outrunning the capacity for passing air at their inlet and discharge orifices.

The increase of water gauge obtained by the Guibal fan is accompanied by a large diminution in the power used; thus the Guibal fan will produce at 700 revolutions the same pressure as the Lloyd fan does at 950 revolutions, the power required to drive the former being little more than one-half of the power needed for the latter, owing to the fact that the driving power of a fan increases as the cube of the number of revolutions.

Mr. D. P. Morison, of Newcastle-on-Tyne, M. Guibal's representative in this country, has made arrangements with Mr. James Nelson, engineer, of Gateshead-on-Tyne, for the exclusive manufacture of these blowing fans, and there is little doubt that when their economy and efficiency come to be known they will be adopted, especially on board ship, in preference to most, if not all, machines previously used for this purpose.

OUR EXPORTS.

The Returns just issued by the Board of Trade show that the value of the exports of British and Irish produce and manufactures during the last month amounted to 17,303,538*l.*, against 17,746,662*l.* in 1877, being a decrease of 2.5 per cent. as compared with the same month of the latter year. Taking the last eight months the total of the exports was 128,364,795*l.*, against 130,568,093*l.* in 1877, or a decline of 1.7 per cent. The decrease, however, has not affected our iron industries to any appreciable extent when taken altogether, whilst there has been an increase in the tonnage of coal sent abroad.

Steel rails maintain their position, showing a great increase over previous years, especially to Australia, British India, and Germany. Russia, however, has not done so much during the year so far, but in Sheffield in particular there are large orders on hand for that country—one firm taking a contract for 17,000 tons, to be delivered during the present year, so that before the close of 1878 she will show to advantage, the increase for the year being 22,500 tons. Prices are still very low considering the active state of the demand, for the average value during the last eight months has been about 7*l.* 13*s.* 6*d.* per ton, against 8*l.* 7*s.* 6*d.* for the same month of 1877. Iron rails show a falling off when compared with previous years, the average quantity sent away monthly being rather more than 11,000 tons a month. But this is only what might be expected, seeing that the price so far has averaged about 6*l.* 3*s.* 6*d.* per ton, or only 30*s.* a ton less than BESSEMER, which lasts nearly five times longer than iron. The returns of hardware and cutlery merely give the values, and last month there was a decrease equal to 2.8 per cent., as compared with August, 1877, the respective totals being 276,425*l.* and 268,270*l.*, but taking the eight months the falling off was only 1 per cent., the amount of the exports being 2,143,077*l.* and 2,121,945*l.* As prices have declined considerably during the present year, it may fairly be assumed that there has been no decrease in weight in 1878, but in all probability rather the contrary. For the goods under this head Australia has continued to be our best customer, so far having taken fully 20 per cent. of all the exports, whilst Germany, British India, and Brazil have also taken largely of hardware and cutlery of British manufacture. We have of late frequently been told that the United States is fast superseding us in many of our old markets, and manufacturing most extensively for their own home markets, yet up to last month there was sent to the States nearly 10 per cent. of all the cutlery and hardware exported from England, showing that some of our goods at least still hold their own in the estimation of no small class of the "free and enlightened citizens."

In wrought and unwrought iron the quantity sent away in August, 1877 and 1878, was 210,219 tons and 213,316 tons, the values being 1,675,660*l.* and 1,585,033*l.*, showing, as before stated, that prices were much higher last year than they have been this, for we have here an increase in metal of 3097 tons, with a decrease in value of 90,627*l.*, equal to 5.4 per cent. In machinery and millwork, or steam-engines, the returns are most satisfactory, the value having increased from 559,612*l.* for the first eight months of 1877, to 655,798*l.* for the corresponding period of 1878, being equal to 17.2 per cent. British India, Australia, and Germany have been the best customers for this description of material, whilst Russia is also showing to advantage, and no doubt will continue to do so, seeing that her railway system is being rapidly pushed forward in all directions.

In tin-plates by far the largest quantity is sent to the United States, fully two-thirds of the exports going there, whilst of English pig Germany and Holland are still by far the largest consumers, as British India is of bars, angles, and bolts. A considerable increase has taken place in the exports of coal, especially during last month, Germany having taken the unusually large quantity of 295,823 tons, against 199,010 tons in July, which swells out the total immensely, for otherwise there would have been a falling off as compared with August, 1877. But taking the eight months we find that Germany only took 1,239,247 tons, whilst for the corresponding period of 1877 she took 1,333,457 tons. The exports for the year so far have been

10,633,099 tons, against 10,535,388 tons, or an increase of 97,706 tons. Taking the eight months of 1877 and 1878, France this year increased from 1,979,719 tons to 2,061,246 tons; Turkey from 166,353 tons to 280,743 tons; Malta from 216,439 tons to 318,330 tons; Brazil from 217,946 tons to 258,049 tons; Russia from 886,915 to 973,473 tons.

With reference to the exports of coal, nothing shows how it has declined in value more than the Board of Trade Returns, and when one comes to look at the variations in value, given on such authority, they are such as few would be inclined to believe at first sight. This will be evident from the figures we now give, showing the exports for the last ten years and the value per ton:—

Year.	Tons.	Value.
1868	10,967,062	£0 9 11
1869	10,744,945	0 9 7
1870	11,702,649	0 9 8
1871	12,749,989	0 9 9
1872	13,198,494	0 10 10
1873	12,617,566	1 0 11
1874	13,927,205	0 17 2
1875	14,544,916	0 13 5
1876	16,299,077	0 10 11
1877	15,358,828	0 10 2
1878 (eight months)	10,633,099	0 9 6

The price in 1873, it will be seen, was more than double that of 1877.

OUR RAILWAY IRON ABROAD.

Notwithstanding that the pacification of Europe was assured by the treaty recently concluded between the great powers at Berlin, it cannot be said that the demand for our railway iron abroad has revived at present. Russia has not imported our rails and railway material at all freely of late, the total quantity sent to the Czar's great empire in August this year having been only 7473 tons, as compared with 8086 tons in August, 1877, and 14,052 tons in August, 1876. In the eight months ending August 31 this year Russia only took our rails to the extent of 37,355 tons, as compared with 59,983 tons in the corresponding period of 1877, and 44,308 tons in the corresponding period of 1876. The explanation of this state of affairs is probably to be found in the fact that the strain upon the finances of Russia has been so great this year that little encouragement has been given to the prosecution of new railways. The construction of railways in Russia, is to a very large extent, a Government matter; and when the Russian Government has other great and arduous affairs pressing upon its attention the development of additional Russian railway communication is naturally checked to some extent. Moreover, even a powerful country like Russia does not recover all at once from the consequences of an exhausting conflict like the Russo-Turkish struggle. Sweden, Norway, and Denmark have purchased our rails rather more sparingly this year, their aggregate consumption to August 31 having been 24,545 tons, as compared with 45,827 tons in the corresponding period of 1877, and 39,987 tons in the corresponding period of 1876. On the other hand, our shipments of British railway iron to Germany have largely increased this year, having risen to August 31 to 28,426 tons, as compared with 15,105 tons in the corresponding period of 1877, and 7172 tons in the corresponding period of 1876.

The consumption of English rails and accessories appears also to be increasing in rather a progressive fashion in Spain; thus we sent the Spaniards 20,065 tons of our railway iron in the first eight months of this year, the corresponding shipments in the same direction having been 15,852 tons in the first eight months of 1877, and 10,580 tons in the first eight months of 1876. Italy, again, took 16,544 tons of our railway iron to Aug. 31 this year, as compared with 7670 tons in the corresponding period of 1877, and 17,355 tons in the corresponding period of 1876. The Brazilian demand for English railway material has been very fairly sustained, although it has scarcely been so good as in the corresponding period of last year. The shipments to Peru have slightly increased this year, although they are still comparatively moderate. The colonial demand has continued steady and good, the shipments to British America, British India, and Australia having attained the following importance during the first eight months of each of the last three years:—

	1876.	1877.	1878.
British America.....Tons	44,767	25,736	25,065
British India	34,696	54,273	75,326
Australia	16,641	52,753	50,719
Total.....	96,104	132,762	151,110

We have characterised the colonial branch of our iron exports as having presented a steady and good demand; but we ought, more strictly speaking, to have termed that demand progressive. If it had not come to the rescue of our iron trade, the last two years would have been a more stagnant and retrogressive period in the annals of the trade than they actually have been. *Somme tout*, our shipments of railway iron to foreign countries and British colonies to Aug. 31 this year amounted to 319,514 tons, as compared with 323,623 tons in the corresponding period of 1877, and 274,253 tons in the corresponding period of 1876. The value of these shipments was 2,421,655*l.*, 2,567,645*l.*, and 2,455,641*l.*, respectively. Perhaps, the returns for the current month may prove of a more encouraging character than those which we have been summarising.

THE TARDY RECOGNITION OF IMPORTANT INVENTIONS.

What an interesting work could be written on the struggles of inventors were it possible for one tithe of what many of them have undergone to be obtained. Yet some of the most important inventions have taken long years from the time of their first introduction until their value was recognised, whilst the men who had brought them out had in the interval to undergo considerable hardships in their endeavours to have their genius recognised, whilst some of them gave up in despair, and died in poverty. Dr. Cartwright, the inventor of the power-loom, retired from his speculation without a penny. Henry Bell, who invented the first steam-boat that ever sailed in British waters, was only saved from starving at the close of his life by a small annuity from the Clyde Trustees. In connection with iron, Henry Cort, by his invention for converting pig into wrought iron, and for drawing the iron into bars by means of grooved rollers, worked a complete revolution in the iron trade; and, as Lord Sheffield said, the processes were worth more to Britain than a dozen colonies. Yet Cort died a ruined and broken-hearted man, leaving a large family without a shilling, and his invention has been the means of putting many millions of pounds into the pockets of others in almost every civilised country. In later days, however, our men of genius have been far more fortunate, although many of them have had to wait patiently for a long time before their skill has been appreciated. Stephenson was looked upon almost as a crazed enthusiast when he talked about travelling on a line at the rate of 20 miles an hour, yet many of those sceptics lived to see trains whirled along at the rate of 60 miles an hour. Still with these facts in our recollection we were not prepared to hear that when a Bessemer steel rail was first introduced to the notice of the most eminent of our railway engineers it was looked upon as an absurdity, and the person who had the temerity to bring it under their notice as something closely allied to a madman. But this was really the case, as declared a few days ago by the person who first brought out the steel rail. This was Mr. Bragge, one of the founders of the vast works of Sir J. Brown and Co. (Limited), Sheffield, and who for a long time has been the managing director of that vast establishment. As Mr. Bragge is going to reside near Birmingham, a few days since he was presented with his portrait in oil, which is to adorn the Cutlers' Hall. In replying to the presentation which was made to him in recognition of the signal services he had rendered to the town, and the interest he had ever shown to all that related to the working classes in particular, he said he was the first person to offer and sell a steel rail. When he first offered such a steel rail to the great engineers in George-street, Westminster, they said—"Bragge, you had better go home and put yourself under the care of your friends." Yet steel rails were on all railways, and only a few days ago the Chairman of the London and North-Western congratulated the shareholders on the great de-

crease in the expenses, which he said was owing to the maintenance of the permanent way with steel rails. They had on that line 800 miles of double railway laid with steel rails. Here we have another instance of want of appreciation on the part of those who had the control of the leading lines in the kingdom. Their favourite rail is fast dying out—is becoming a thing of the past, and the Bessemer is replacing it, being not only far more durable but far more economical as well. So much for old prejudices, that the force of genius takes too often a long time to scatter.

THE EXPLOSIVES ACTS.—A return moved for by the O'Connor Don of the names of the Inspectors of explosive substances appointed by the magistrates in Sligo, Roscommon, Longford, and Westmeath, under the provisions of 38 Vict. c. 17; the salary paid in each case; the number of places inspected in each district; and, so far as possible, the total value of all explosive substances sold in each district within the last year, has just been printed, and shows that of 61 petty sessional districts 23 have no Inspectors at all, while the remaining 38 districts have 24 Inspectors divided amongst them. These 24 get an aggregate salary of 252l. 10s., and during the past year they have visited 62 places, so that the cost of inspecting registered premises and stores has been, on the average, 4l. 1s. 6d. This is irrespective of travelling and other expenses, and the cost of the Government department, which has to deal with magazines. At present the cost of these inspections as compared with the value of the explosives sold is relatively large, for it will be found that the total value of the explosives sold in the 61 petty sessional districts was 1075l. 18s., so that the salaries of the local Inspectors alone amount to about 23½ per cent. on the value of the explosives sold. In Sligo several instances are given of salaries drawn, but not an ounce of explosives sold. In Roscommon the same thing occurs, and there are instances in which the salaries exceed the amount sold. There are repetitions of the same thing in Longford and Westmeath; but as dynamite, the principal explosive affected, is constantly coming more extensively into favour, and as its properties and elements of safety and danger are now so thoroughly understood that accidents can with ordinary care be reduced to the minimum, it may be hoped that at no distant date these inspectors' salaries, which are really so trifling as to be scarcely worthy of consideration as a public charge, will be not 23, but only 2 or 3 per cent. of the value of the explosives sold.

RAPID BORING—THE ST. GOTHARD TUNNEL.—The official report of the engineer of the St. Gothard Tunnel as to the progress made during August has just been issued, and shows that at the Airolo (Italian) end of the tunnel, where the McKean drill is exclusively used, the heading was advanced 170 metres, or about 94 fms. 2 ft., during the month. This is believed to be the largest amount of work ever accomplished, taking an entire month's work. It has frequently been shown by taking a few hours or a few days' work that the progress of some given drill which it has been desired to recommend has been at the rate of a fabulous number of fathoms per month, but in practice 10 fms. per month has seldom been exceeded, and even the celebrated Winchester (American) drills never exceeded the results obtained in the Boston Waterworks Tunnel during May and July, 1875—that is to say, 26 fms. in each month. The McKean drill was the first in the market, and the first advertised in the *Mining Journal*, and it is gratifying to find that after such long experience it so well maintains its ground. Equal energy is shown on the Gothen side, where no less than 1000 men are employed inside the tunnel, and 400 outside: 300 wagon loads of earth are excavated every day, and in the daily blastings 600 lbs. of dynamite are used. The weekly expenditure is put down at 10,000l., and it cannot be doubted that such results as these will favourably influence the approaching popular vote on the matter of the supplementary subvention.

TUNNEL DRIVING BY ROCK-DRILLING MACHINERY.—The rock-drills and compressed-air machinery supplied by Mr. J. G. Cranston, Newcastle-upon-Tyne, and started work in the Eberhardt and Aurora tunnel by Capt. Drake at the latter end of October, A.D. 1876, has driven the tunnel 7 ft. by 9 ft., principally through hard limestone rock intermixed with quartz, at an average rate of 45 linear feet per week. The total length of tunnel driven up to the beginning of August last was 3841 linear feet, and driving then at the extraordinary rate of 95 linear feet per week. This machinery has given the utmost satisfaction to Capt. Drake, as will be seen by his reports which appear in the *Journal* from time to time.

UTILISING WASTE MINERALS—DEVONSHIRE WARE.—The award by the jurors of the Royal Cornwall Polytechnic Society of the *Mining Journal* First Prize to Messrs. Candy and Co., of Chudleigh-road Station, Devon, for their attractive exhibit of vitreous bricks, tiles, and pottery were manufactured from refuse or rejected clays, previously considered valueless, and they may now be further congratulated upon their ingenuity having been also recognised by the International Jurors of the Paris Universal Exhibition, who have awarded them the grand medal for their exhibits in the Champ de Mars.

PREVENTION OF OVER-WINDING.—The International Jurors at the Paris Universal Exhibition have awarded a prize medal for King's Patent Safety Detaching Hook for the prevention of accidents by over-winding at collieries, and for his Patent Safety Grip to suspend the cage in mines, hoists, or lifts in case of fracture of winding ropes, for their superiority over all other appliances for similar purposes, owing to their simplicity and certainty of action. There are upwards of 1600 of these hooks in use, which have saved over 300 lives, and their utility is such that they are now adopted at the principal mines both in this country and abroad. The invention has several times been described in the *Mining Journal*, and it appears that the manufacturer is now receiving orders from America, India, Sweden, Spain, and elsewhere, showing that its merits are not recognised in England alone, but also in other mining countries.

THE DIAMOND MINES OF SOUTH AFRICA.—An elaborate and interesting paper, "On the Kimberley Diamond Mine, South Africa," was read at the recent meeting of the South Staffordshire and East Worcestershire Institute of Mining Engineers, by Mr. F. W. North, M.E., F.G.S., and through the courtesy of Mr. Alex. Smith, the secretary of the institution, the publication of it is commenced in another column of this day's *Journal*. Mr. North refers to the Star of South Africa, which was among the first diamonds found, weighs 40½ carats, and now belongs to the Countess of Dudley, and states that its present value is between 30,000l. and 34,000l. He mentions four mines contained within a circle of four miles diameter would produce rough diamonds of the value of 2,500,000l. The paper was listened to throughout with marked attention, and at the conclusion a hearty vote of thanks was passed to the author. Several valuable papers have previously appeared in the *Mining Journal* from Mr. North in connection with his visit to Cape Colony, and he is now about to return to South Africa to fulfil an engagement with the Government of Natal which that colony has long had in view—to have some competent mining engineer, thoroughly acquainted with coal and the coal trade, to inspect the coal deposits that are known to exist in several places in that colony. He is instructed to go thoroughly into the question, to open up outcrops wherever he finds them, to bore down in search of the coal where he cannot find outcrops, but where he thinks it needful to ascertain, if possible, the continuity of any seam or seams. By this means it is intended to ascertain the area of the coal field, and also to form an approximate idea of the number of tons contained therein. Then the more important point of quality must be tested by analysis and actual use, so that the itinerant inspection may end in the fullest information upon the coal question for that thriving colony. Mr. North has thoroughly gone into this subject for Cape Colony, and six months work in metal will no doubt give him all the information needed.

LEAD MINING IN NORTH DEVON.—We are informed that some important discoveries of silver-lead lodes have been made in the North Devon district within the last month. The present low price of metal is the chief drawback to the district not being more vigorously

ously worked. It is now proposed to cut a line of railway from Barnstaple to Combarton, and this road would pass through the silver-lead lodes. The old Combarton Mine was at one time very profitably worked.

REPORT FROM CORNWALL.

Sept. 12.—It is, perhaps, not altogether easy to account for the fact, but in spite of the inactivity which has prevailed since the last drop in the tin standard there certainly is a more hopeful feeling abroad. So far as one can trace its origin it may probably be ascribed to three or four causes operating in concert. For one thing, there really appears to be very little reason to doubt that the last fall has had a good deal more to do with individual pressure upon speculative dealers who have proved unable to stand the strain than with the more ordinary and regular consideration of supply and demand. For another, recent accounts received in Cornwall, and from apparently trustworthy sources, do something more than throw a doubt upon the fabulous richness of Mount Bischoff and similar deposits. For a third, there was a time when our mines were more economically worked or more productive. And so September finds us once again, all hoping once more that things have come to the worst, and that they must ere long mend. We see very little reason to doubt that this is substantially the correct view of regarding matters, and those who are inclined to invest should remember that mines which continue to pay dividends now have every promise of having properties of enormous value in the future. Still, the pressure both general and personal is very great, and we see some of its effects in the again increased activity of emigration. The time will come when we shall have to regret the loss of so much valuable working power. All the machinery in the world will not enable us to dispense with men to work it; on the contrary, the more expensive and important the use of machinery in our mines the more skilled must be the miners who have to work it.

Cornwall has lost in the sudden death of Sir F. M. Williams, M.P., one of the best known and most highly respected of her men of business. No name has been more prominent in connection with mining matters in Cornwall than that of Williams. It was to an ancestor of the deceased gentleman that we owe the great county adit, and Sir Frederick's father, the first baronet, Sir William Williams, was all his life bound up in mining and its allied industries, and was ever regarded as one of the highest authorities on mining business in the county. Sir Frederick succeeded his father in most of his business relations in connection with mining, smelting, founding (Williams' Perran Foundry is known all the world over), banking, and fishing, and his wide-spread connections with all manner of Cornish activities rendered him peculiarly qualified to represent the interests of the county in the House of Commons, in which he had sat as Member for Truro for many years, though dying comparatively young.

Capt. Hugh Stephens, the manager of West Roskear Mine, has been prosecuted for four offences under the Metalliferous Mines Act—not keeping a proper "section" of the workings; not providing adequate ventilation; not fencing a shaft securely at an underground plat; and not providing proper appliances for drying the clothes of the underground men.—The Government Inspector, (Dr. Le Neve Foster) stated that he visited the mine on Aug. 27, 1877, and on Sept. 5 following he sent the agent written notice to make a "section" and to provide a proper "dry." He visited the mine on Dec. 18, and again complained. On Jan. 26, at a third visit, he found that the same offences were being committed, and finally, on Aug. 13 last, he still found that his notice had not been attended to. In addition to this he discovered that in two places—a windy head an eye—the air was so bad that a candle would not burn and went out altogether when held upright, and that the miners could only keep a light by holding their candles horizontally. Capt. Stephens pleaded in extenuation that men had only very recently been to work at these places, and said that the "dry" had been completed since the Inspector's visit, the shaft fenced, and the section made.—After retiring for consultation the magistrates returned, and the Chairman (Mr. Bickford-Smith) said they considered the charges proved. He pointed out that the agent was liable to imprisonment and hard labour, but said they would deal leniently, as this was the first case where had vented before had been complained of. They would inflict the following fines:—For the want of a section, 10s.; for not fencing the shaft at the plat in the 12, 1l.; for ventilation, 1l.; and want of a proper dry, 2s., with 2l. 4s. costs, in all 6l. 14s.

Capt. Wm. Skewis, one of the lessees of Wheal Arthur, has been prosecuted by Dr. Le Neve Foster, H.M. Inspector of Mines, for neglecting to fence a certain shaft at Whimble farm, and some pits. Mr. E. Chilcot, of Tavistock, appeared for the prosecutor, and Mr. Nicolls, of Callington, for defendant. The Inspector proved that he had given a written notice to Capt. Skewis to fence the places in question in May last, and found nothing done when he visited the mine in August. For the shaft he discovered that in two places—a windy head an eye—the air was so bad that a candle would not burn and went out altogether when held upright, and that the miners could only keep a light by holding their candles horizontally. Capt. Stephens pleaded in extenuation that men had only very recently been to work at these places, and said that the "dry" had been completed since the Inspector's visit, the shaft fenced, and the section made.—After retiring for consultation the magistrates returned, and the Chairman (Mr. Bickford-Smith) said they considered the charges proved. He pointed out that the agent was liable to imprisonment and hard labour, but said they would deal leniently, as this was the first case where had vented before had been complained of. They would inflict the following fines:—For the want of a section, 10s.; for not fencing the shaft at the plat in the 12, 1l.; for ventilation, 1l.; and want of a proper dry, 2s., with 2l. 4s. costs, in all 6l. 14s.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Sept. 12.—Pig-iron sells without any vigour, and the demand has not increased since last week. Stocks in the hands of makers and carriers show little evidence of decreasing. Prices are not notably changed, and for all-mine sorts remain officially at 5l. for cold-blast, and 4l. for hot-blast. Sellers of common pigs remain at about 2l. as a minimum. In finished iron the demand runs mostly on small sections and inferior qualities. Good sheets are quoted at 9l. for singles. Sheets are, however, plentiful at from 8l. 10s. to 8l., and inferior sorts descend to as low as 7l. 10s. per ton. Girder-plates range from 8l. to 9l. per ton. The work doing at the collieries is little varied in extent upon a week ago. Everywhere the quantity of fuel being mined is much within the capacity of the pits.

The colliers throughout the whole of South Staffordshire and East Worcestershire district continue to be stirred up by the Union agents with much vigour to join the ranks of the Union, with a view, they are told, of being in a position to secure at no distant date an advance in their wages. The agents state that the trade is improving, that no doubt it will continue to do so steadily, and that the time is arriving to appoint a deputation to wait upon the masters and ask that the miners should be paid higher wages. The present rate of wages, the agents state, is 3s. 2d. per day. They urge that underselling on the part of the masters is the ruin of the trade. In order that they may get more money these men do not hesitate to assert that the public must pay a higher price for their coal, and that the ironmasters must if necessary raise the price of iron. But they themselves are not prepared to make any concession at all, for they still declare their adherence to the eight-hours system. I need not point out the fallacy of these arguments, for they are palpable. In the first place the coal trade is not improving, and next any rise in prices would at once check any tendency in that direction. But I would call attention to the unreasonableness of the agents in connection more especially with the question of hours. The eight-hours system was adopted in July, 1872, the working day previous to the commencement of 1872 having been 11 hours. When the eight-hours system was adopted thick coal was selling at 15s. a ton, but at the present time it is difficult to secure 9s. a ton for it. Comment is needless.

A man named Samuel Whitehouse has met his death at the pits of the Horseley Colliery Company, Tipton, by a fall of coal in a gate road. This is the first fatal accident since the pit started. A verdict of "Accidental Death" has been returned.

By the explosion, on Monday, of a small boiler that had just been erected in a greenhouse on the premises of William Jones, Brook-street, Smethwick, an engineer named John Middleton, who has works close at hand, was killed, and Jones and his wife were badly hurt.

An interview on Monday between the Chairman of the Wrought Nailmakers' Association, and three of the men's delegates, has failed to bring the strike any nearer a termination. Meanwhile, it is stated that some merchants are sending orders for nails to Belgium, in consequence of stocks at the warehouses here having run out. The horse nailmakers have secured the advance they demanded of 3d. per 1000.

In North Staffordshire the Chatterley Iron and Coal Company have started another furnace at Chatterley, and also one at Chesterton, which has not been worked for three years. At the works of Mr. Robert Heath a large number of men are at work at the steel forge.

Some of the colliery owners have served notices upon their men to pay by a new weighing system. The men affected state that this would mean a general reduction, and they have held meetings at which it has been resolved to resist any drop.

Some months ago we drew attention to the specimens of salt prepared for the Paris Exhibition by Mr. John Corbett, M.P., the proprietor of the extensive salt works of Stoke Prior, in Worcestershire. We understand that Mr. Corbett invited the scrutiny of the International Jury on his claims of superiority for the colour and purity of his salt, alike for table use, for dairy purposes, and for the curing of provisions generally; and this merit they have recognised by awarding him the gold medal. Mr. Corbett may well feel flattered that his salt commands such a reputation as to secure the medal at so many successive International Exhibitions, but his receiving two medals on this occasion—the second being under the "Fifth Group: Mining Industries," &c.—must be both gratifying and encouraging.

The Committee of the South Staffordshire Ironmasters' Association met privately on Thursday to consider the question of prices relating to marked bars, which have ruled at 8l. 10s. per ton for over 12 months. The principal members present were Mr. E. Fisher Smith, Lord Dudley's agent; Colonel Barrows, of Barrows and Sons; Mr. J. P. Hunt, of the Congreves Iron Company; and Mr. Foster, of John Brandley and Co. The wide difference of 2l. between the price of marked and unmarked iron was urged upon the meeting. Eventually it was decided, but not unanimously, to reduce marked bars 20s. per ton, which are now 7l. 10s., a price they have not reached for some years past. In 1869 they were 7l., but soon went up to 8l. The present reduction will not affect the price of common, nor will it bring down the men's wages, which stand at 8s. per ton for puddling, though it is probable that some of the masters will ask their men for a concession. The reduction has come entirely by surprise to the trade generally, some hailing it with satisfaction, and the others declaring it to be the height of folly.

Telegram: The market in Birmingham was surprised this afternoon when towards the close it was announced that two leading firms had dropped marked iron 20s. The firms mentioned are Messrs. Philip Williams and Son, and Messrs. Burrows and Son. One of these firms believed last Quarter-day that it will be wise to declare even a greater drop, but the opinion was not shared by the majority of the associated firms. To-day's action in anticipation of the next quarterly meeting makes, it is assumed, 7l. 10s. the ruling price for marked Staffordshire bars.

TRADE OF THE TYNE AND WEAR.

Sept. 11.—The shipments of steam coal during the week have been large, and at Cambois and a few other places full work, or nearly so, has been done. The demand for house coal has improved a little, but it is by no means strong as yet. A few of the gas coal works in Durham are also kept going full time, and all other works are employed from half to about two-thirds time. The shipment of coal at Tyne dock is about an average—that is, about 30,000 chaldrons per week. There is no change in prices, and it is still difficult to sell second-class coal at any price. The fire-brick trade has been in a very dull state for some time, but it has improved a little. The best trade on the Tyne and Wear is the iron shipbuilding, which continues very steady, and there is a good prospect for work of this kind at present—at all the great works keels for new steamers have been laid down, and there will be sufficient work for the remainder of the year. A series of experiments are being carried out in one of the passenger steamers of the Tyne General Ferry Company, the object being to ensure a higher rate of speed and economy of fuel. Messrs. Hawks and Co., Gateshead, have fitted the engines in accordance with Mr. Perkins' patent, and so far as trials have been made the results have been very satisfactory. A movement has been commenced in Durham to increase the working hours of mechanics and others employed on the surface.

On Saturday morning all the mechanics employed at the Marquis of Londonderry's collieries at Seaham and Seaton received notice that on and after Sept. 23 the hours of working be lengthened an hour each working day. The mechanics at South Hetton and Murton Collieries have received similar notices, and have submitted to the demand, but at Seaham and Seaton things have assumed a very serious aspect. The men belong to the National Amalgamated Society of Mechanics, and there seems every likelihood of a strike, in which case they expect to receive the support of the whole country. The wages of the mechanics are 3s. 6d. per day of nine hours, except masons, who have 3s. 9d. An additional 2d. is paid when they work down the pit. It is stated that the colliery mechanics employed by Messrs. Straker and Love at their collieries in the Wellington district are about to begin working ten instead of nine hours per day. At the Seam and other works in Durham this change has been effected.

A project has just been started in Stockholm which in its eventual issue will not be without interest to the coal trade of Newcastle and other ports on the Eastern Coast of England. The immense deposits of metallic ores, especially iron, which exist beneath the soil of Lapland have remained valueless and inaccessible hitherto, but Swedish railway engineers have within the past few years been turning their attention to the subject, and the surveys which have recently been completed have resulted in the projection of a line of railway along the valleys of the rivers Lulla and Sornea from the Gulf of Bothnia, across Lapland to the shores of the Northern Ocean. It is proposed to erect furnaces and ironworks at convenient spots not far from Hammerfest, near the coast of the Arctic Sea, where the climate, owing to the gulf stream, is for such a high latitude comparatively mild, and where, owing to this temperature, it would be possible to obtain coals from Newcastle or other English ports at almost all seasons of the year.

The International Jury at the Paris Exhibition have awarded a silver medal to Messrs. Black, Hawthorn, and Co., Gateshead, for the small narrow gauge tank locomotive exhibited by that firm. A gold medal has been awarded to G. H. Ramsay, of Newcastle-upon-Tyne, for the various goods exhibited by him in class 43—that is, fire-bricks, sanitary pipes, &c.

Steady progress continues to be made at the new winning at Whitburn by the Chaudron system; 84 metres have now been completed, the full size, equal to nearly 46 fathoms. Lately the average progress has been 8 in. per day (24 hours); the material has been very hard, not lying in beds or stratified, but large lumps of gravel, lying in a matrix resembling the hardest cement. A softer material will, however, be reached shortly, and then the rate of progress will be increased. The total depth to bore now is about 25 metres, so that this difficult task will now soon be accomplished.

At the North of England Institute of Mining and Mechanical Engineers meeting, on Saturday, a paper was read by Mr. A. R. Sawyer, Associate R.S.M., "On the Saarbrücken Coal Field," which he said was one of the largest in Europe. In 1874 the Saarbrücken Collieries yielded an output of 4,158,249 tons, and employed 21,000 workmen, 500 horses, and 199 steam-engines, equal to 10,300-horse power. The coal is of pretty good quality. It is found in four groups of strata—in the upper groups it is non-bituminous, and in the lower bituminous and caking, though not to any remarkable extent. In the middle groups the coal is mostly semi-bituminous. It undergoes great changes when exposed to the atmosphere. After even a few days exposure it yields less gas and less firm coke than when fresh from the pit. It is very hard, having to be blasted, and thus producing a good percentage of large coal. The output in 1876 was 4,992,441 tons, value 2,423,508l.; the number of colliers 26,701, and the number of collieries 19. For a long time the only method of working was by bord and pillar; longwall was first introduced in 1864, and has proved very satisfactory, enabling some seams to be worked which formerly were considered unworkable, and producing cleaner coals out of others.

The iron market at Middlesbrough on Tuesday opened extremely quiet, there was but a very limited demand, and no improvement appeared as the market proceeded. The quiet state of trade is affecting the price of foundry iron, for though some of the makers who are well sold forward still quote No. 8 at 30s. 6d., less commission,

not more than 39s. can be obtained. Forge-iron still continues to be rather scarce, and stands at 38s. 6d., less 1 per cent.; No. 1 being 43s. ditto. There are very few transactions taking place, as buyers have generally satisfied their wants. The decrease of stocks for the last month being small has not had much effect upon the market. Makers' stocks decreased 11,107 tons, but there was an increase in warrant stores of 2975 tons, and an increase in makers' stores of 6115 tons. Stocks are still heavy in the district, being in makers' hands 175,200 tons, and in warrant stores and makers' stores 117,391 tons, giving a total of stocks of 292,593 tons in the district. The latest return gives a total of above 200,000 tons of pig-iron shipped to Scotland since the beginning of the year from the Tees, an excess of 8000 tons over the deliveries of the corresponding period of 1877. The deliveries to Scotland were last week a full average, being over 6000 tons. There are 94 furnaces blowing in the Cleveland Ironmasters' Association district, and 71 out; of those in blast 19 are engaged in producing other kinds of iron than Cleveland. In manufacturing iron there is no improvement yet appearing, prices have been about stationary, and plates do not vary from 6l. 5s. to 6l. 7s. 6d.; angles and bars as last quoted. The plate makers are generally pretty fairly employed, and orders are received from the Clyde and elsewhere, where the shipbuilding trade is in a better condition than the Tees, as in that river work appears to be getting much slack. Pipe-founders are fairly employed, but the railway chair trade, which promised so well in the early part of the summer, is now in a quiet condition, with little demand.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Sept. 12.—Business has undergone but little change since last noticed in either the mining or manufacturing districts. A few of the lead mines continue to turn a fair quantity of ore; but, considering the number, the average output is very small indeed. But it may be said that what may be termed real production worth speaking of is confined to three or four places. A very fair trade continues to be done with Northamptonshire in ironstone, and some of the largest Derbyshire ironmasters are now working the ore on their own account, instead of, as formerly, buying it from other lessees. Pig has become somewhat quieter, and there does not appear just now much likelihood of an immediate advance, so that makers do not hold back, as it was thought probable they would do, in expectation of an increased demand, which was generally looked forward to a week or two since. Some of the foundries are fairly off for work, but there are one or two where the men are not on full time. At Dronfield, however, Bessemer makers continue as busy as ever, for there has been no falling off in the make of rails, nor is there likely to be. Some of the collieries are putting in more time, and at several of them an increased business has been done with London in house coal. The merchants there, it may be said, have lately advanced the price to customers 1s. a ton, but no such advance has been made at the pits, for prices as a rule are without any alteration. Steam coal has gone off rather better of late, but like other qualities prices remain as they have been for some time. In other descriptions of coal the demand is but moderate, and charges very low. At Unstone many of the miners who have been out for some time have resumed work, the dispute as to wages having been settled.

In Sheffield some of the branches are scarcely so busy as they were a few weeks since, so that the improvement which was thought to have set in, and likely to be permanent, has not turned out so. The armour-plate mills have been worked very well, but there is scarcely so much doing in those of a lighter description for boilers and shipbuilders. The steel rail mills are busy, and some good orders are in hand for Russia and other parts of the Continent, as well as for some of the home lines. Bessemer is also being used for cutlery and other purposes, so there is an increasing demand for hematite pig. In cast-steel the business doing is still very moderate, excepting in the case of a few specialties. Girders are rather quiet, and the Belgian makers are sending a good many to us, but they are generally of an inferior quality, but they can be produced rather cheaper than the English. Some of the cutlery houses are doing a steady trade in table and other knives of good quality, but the others are anything but fully employed. File makers are still very quiet, and there has been no improvement with respect to the engineering branches, which have been badly off for a long time. The foundries are kept tolerably well going, but there has been a falling off in the requirements of builders, as well as in fancy stoves and grates. At Rotherham some of the mills are doing rather better, whilst nearly all the brass foundries are well employed. There appears to be a move with respect to coal at some of the collieries, and more men are employed than for a considerable time past. The week, however, will be a broken one, owing to the races at Doncaster, for both miners and ironworkers, whether trade is good or bad, find the means to see the Leger run for, and not a few of them the cup as well. Steam coal has been in better request, so that stocks have disappeared. In the Barnsley district there are a good many men still on strike, but during the last week or two the number on the funds of the Association has decreased.

At Dodworth Silkstone Colliery the men have been out for nearly 14 months, and as the manager has shown no signs of giving way, it is said that Earl Wharfedale and Mr. Chamberlain, M.P., have been asked on the part of those on strike to use their efforts to bring about a settlement.

On Monday next there is to be a demonstration of miners at Barnsley, when addresses in support of Unionism will be given by the leading men connected with miners' associations in different parts of the kingdom.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Sept. 12.—A movement is on foot to connect the Dyliffe and neighbouring mines, and the surrounding district, with the Cambrian Railway at Llanidloes by a narrow gauge railway. The engineer of the scheme is Mr. W. H. Shipway, and a committee has been formed for carrying the movement forward. Besides the advantage to the country generally, the lead mines of Montgomeryshire will be very much benefited. These mines comprise within their number several well known to the readers of the Journal, as Great Dyliffe, Cyfartha, Cefnhafoed, Nantyricket, Snowbrook, Severn Valley, Aberdunant, and Van Consols.

I notice a very glowing report of the Pant-y-mwyn Mine in last week's *Mining Journal*, by a gentleman whose name is new to me. If what he says is true, that the reserves discovered are of the value of 250,000l., what a prize the investors have got. It is almost too bad of them to make our teeth water for a slice of their good luck, when, of course, they can have no commercial interest in describing the grand resources of their property. I see, also, that it is a true defined vein, and not an exceptional deposit in the carboniferous, but existing in the mountain limestone. Could Mr. Metherell, with his great practical experience, for the sake of our less geological readers, describe the difference between these two groups of limestone as defined by him?

I am glad to notice the improvement in depth of the lode at the Pensin and Bryn-y-arin Mines. It looks as if there were going to be successive runs of ore crossing their shaft obliquely from east to west as they gain depth. A good discovery of lead ore is also reported privately from the old Grosvenor Mine, in Flintshire, which must be encouraging to the explorers, as also the new discovery at Parys Mountain. I did not know when I referred to the Coed Mawr Pool Mine last week that it is contemplated enlarging the capital and works of the undertaking on a new basis, which is, I believe, the case. Without interfering in the correspondence between Mr. Robert Knapp, whom we are glad to hear breaking silence again, and "Engineer," whom I do not know, it would be very interesting to many persons interested in the Llanrwst Mine, which at its birth was certainly invested with a halo of promises, if Mr. Knapp would describe the parts of the mine from whence, if it were wise to do so, 100 tons of ore could be derived monthly. The list of discoveries is large this week—5 tons of ore per fathom along the lode is reported to be discovered in a north and south lode at the Ynys Mine, Cardiganshire. Is this the Pwll Roman Mine I referred to last week? One would like confirmation of the statement. North and south lodes are not usually reliably productive lodes.

Apart from a rather better enquiry for house coal, no improvement can be recorded in the coal trade. At the Plaskynaston and New British Iron Company's pits there are large accumulations of stock. Vauxhall seems to be doing a fair share of trade. Black Park hardly as much as formerly. Brynkynallt is doing a good deal of business, but the quotations of the collieries south of the Dee can hardly leave a margin for profit. It cannot be said that the rolling stock of any of the Welsh collieries is fully employed.

The wagons from the Lancashire collieries now outnumber those

from North Wales on the sidings at Birkenhead. Both Lancashire and North Staffordshire have an advantage over North Wales in the fact that lower rates for carriage prevail on the London and North-Western lines than on those of other companies.

The efforts to improve the quality of the North Wales phosphates by more careful dressing have been successful. They are now brought up, it is said, at the Berwyn Mine to from 50 to 53 per cent., with a satisfactory absence of deleterious matter. The deposit at this mine is very extensive, and there seems to be no reason why it should not be very extensively worked. An output of 200 or 300 tons a week would also be a valuable addition to the traffic of the contemplated railway of the Tanat Valley, of which I should like to hear something definite.

NOTES FROM THE CLEVELAND DISTRICT.

Sept. 12.—The large stocks of iron which have been accumulating for the past seven years are being gradually reduced. The rate of reduction is not very great, having been for the past four or five months not much more than about 4 per cent. on the net total stock in the district. Yet even this small diminution is a very healthy sign, as showing that once more the demand is greater than the supply. For too long a period the supply was very much in advance of customers' requirements, and consequently the great mounds of iron, which any person travelling along the line of blast-furnaces skirting the River Tees from Stockton to Coatham may see, have arisen and have become a serious drawback to the commercial advancement of the district. If the wise course of blowing out furnaces had been adopted a few months earlier the pig-iron trade of Cleveland would now have been in a much more healthy condition than at present. I pointed out in my letter last month that, although about 12 furnaces have been put out of blast since the latter part of last year, the make of iron has been very imperceptibly decreased, owing to the great economy in working which has been practised. The amount of iron now sold, therefore, is very much larger than it was nine months ago, and this not owing merely to the fact that we are now in the height of the shipping season.

By the returns of the Cleveland Ironmasters' Association I see that the make of Cleveland pig-iron during the month of August amounted to 138,318 tons, while the quantity of iron of other kinds, chiefly manufactured from hematite ore, was 30,174 tons, or a total make of 168,492 tons. This was just 339 tons less than the total make during the month of July with the same number of furnaces blowing—namely, 94. Makers' stocks of Cleveland iron decreased during August to the extent of 14,107 tons, but there was an increase in warrant stores of 8490 tons, so that 5617 tons of iron were sold over and above the make. On Aug. 31 makers' stocks amounted to 175,202 tons, and stocks in store to 117,391 tons. A good deal of business is now being done in Cleveland iron warrants, and, writing on Tuesday, Messrs. Connal and Co., the warrant storekeepers, say:—"We learn the last business done in our Middlesbrough f.o.b. warrants was 39s. 7½d. prompt cash for No. 3, at which there are still sellers, buyers offering 39s. 6d." Messrs. Connal and Co. have now in stock 67,800 tons of Cleveland iron. Their Glasgow stock amounts to 192,450 tons. The shipments of iron last month were about the same as in July; 33,809 tons were exported to foreign countries, and 39,446 tons were shipped coastwise, chiefly to Scotland. The reference to Scotland reminds me to remark that the action of Scotch ironmasters in reducing their prices as they have lately been doing is not without its effect on the Cleveland market. Until the announcement of the great fall of Scotch prices it was naturally expected that a reduction of stocks to the extent of 5600 tons in a month in which the local mills and forges had been closed one full week owing to the Stockton races, would have had the effect of enhancing prices at least 6d. per ton. Instead of that the market on Tuesday was as dull as it is possible to imagine, and very little iron was sold. Ironmakers, of course, are not willing to give up the advantages they have recently gained over merchants, and consequently refused to sell at less than 39s. 6d. per ton for No. 3, and maintained their determination not to sell even at that figure for forward delivery. Their books are fairly full of contracts at one and two months. It is, however, admitted that if the Scotch market continues to fall prices of Cleveland iron must decrease also.

There is no prospect of more furnaces being put in blast at present. The district appears to have found its normal level, and capital is not so plentiful as to be wasted, as it would be if invested in blast furnaces at present. The finished iron trade has made no advance during the month; manufacturers report orders as being very scarce. Throughout all the depression the plate trade has been very well maintained, but even that is now in a desponding condition so far as ship-plates are concerned. The iron shipbuilding industry has been good for a long time, but builders are now coming to the end of their orders, and no new ones have yet come in. Messrs. T. Hopkins, Gilkes, and Co., are proceeding rapidly with the conversion of one of their large iron rail mills into a plate mill, but the plates they will manufacture will be mainly consumed by themselves in their engine works. Bar-iron is in fairly good demand, but the prices received for it are very meagre. The steel trade is certainly the brightest of any in the district. Messrs. Bolckow, Vaughan, and Co., certainly did wisely when they entered upon this trade. Their mills at Eston, which produce 1200 tons of rails per week, are inadequate to meet the demand made upon them. The new mill, which will add about 300 tons per week to their producing power, will soon be ready for work. Foundry work is not so good as it was two or three months since. The demand for castings is small. Pipe foundries are well employed, but the prices they realise are very poor. Altogether the district is in a very uninteresting state just now. There are none of the signs of vitality in operation which led one to suppose a few months ago that the flood-tide of prosperity was beginning slowly to move Cleveland-wards. I mentioned that it was probable some steps would be taken to raise a memorial to the late Mr. Thomas Whitwell, who was killed by an explosion of gas from one of Bichereux's furnaces at his own works at Stockton. Mr. Whitwell was the founder and promoter of the Young Men's Christian Association at Stockton, and a meeting has been held at which it was determined to raise funds for the removal of the debt, which amounts to between 1500l. and 1600l., existing on the new buildings of this association. When that is done the name of Mr. Whitwell will be affixed to the buildings.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Sept. 12.—I am sorry this week to have to allude to one of the most stupendous colliery accidents that has ever blackened the annals of mining in this country. The accident which has occurred at the Ebbw Vale Company's pit, Abercarn, near Newport, has caused the sacrifice of 267 lives. Out of over 370 who went down the pit by the morning shift on Wednesday morning, only about 100 are now in the land of the living. All went on smoothly till about noon, and the day was a bright clear one, and not, atmospherically considered, such a day as heralds a colliery explosion. Exploring parties, under the guidance of Mr. Pond, the manager, went down the pit, but their action was stopped about midnight on Wednesday by the intelligence that the pit was on fire, and this proved to be the case. After further consideration it was deemed advisable to flood the pit, and the canal water was let in. This was flowing up till the time I left to-day, and it is not believed the bodies can be reached for some time, as it will take several days to pump out the water. Mr. Cadman, Inspector for the Western District, Mr. Bain, his assistant, and Mr. Wales, Inspector for the South Wales District, are on the spot, but nothing further can be done. The inquest was opened to-day and adjourned, no evidence being taken.

The death of Mr. Rees (for about 20 years in the employ of the Blaenavon Company) is announced. The deceased gentleman was very much respected.

The Iron Trade shows but few signs of improvement; in fact there is not quite so much doing at some of the local works. Clearances have not been over brisk during the week. The demand for railway iron is somewhat quiet, and there are complaints as to a scarcity of orders. The bar trade is somewhat more active; pig-iron

is rather dull. The complaint is not so much as to the enquiries afloat but the lowness of prices, which prevents many masters from taking orders. The steel trade is fairly active, but rails are selling at unprecedentedly low prices. Tin-plates are dull, and quotations very unsatisfactory; at the same time many establishments are going full time, especially in the Swansea district.

The Coal Trade is not much changed. Prices remain very low, but yet the output is large, and the demand on foreign account for steam is very large. House coals are still quite, and a scarcity of orders is much complained of. The patent fuel trade is very quiet. During the month of August Cardiff cleared 4534 tons of iron, against 9500 tons in the same month of last year. Newport, 5129 tons, against 8012 tons. Swansea, 686 tons, against 123 tons. The principal clearances last month were as follows:—Bombay, 1864 tons of rail; Porto Rico, 506 tons; Trinidad, 983 tons; Esbjerg, 699 tons; Bahia, 540 tons of rail; New York, 780 tons of bar; Salonia, 669 tons; and Vol, 459 tons of bar. During the last month 367,256 tons of coal were cleared foreign, against 334,151 tons in August, 1877. Newport, 73,925 tons, against 49,084 tons; Swansea, 57,084 tons, against 56,100 tons; and Llanelly, 4920 tons, against 4937 tons. Coastwise clearances during the same period were:—Cardiff, 69,254 tons, compared with 76,219 tons; Newport, 79,771 tons, against 73,894 tons; Swansea, 23,156 tons, against 24,612 tons; and Llanelly, 13,428 tons, against 11,638 tons. Patent fuel shipments were:—Cardiff, 9659 tons, against 4380 tons; and Swansea, 16,480 tons, against 18,772 tons.

A silver medal has been awarded by the jury at the Paris Exhibition to Messrs. E. Morewood and Co., tin-plate manufacturers, South Wales Iron and Tin-Plate Works, Llanelly, for the superiority of their exhibits in class 43, which comprised large tin andterne sheets and tin andterne plates, made through their well-known patent machines. A silver medal is the highest prize awarded at the Exhibition, and it is pleasing to find that South Wales still retains the lead in this branch of its manufactures.—The Cambrian Patent Fuel Company (represented by Messrs. Noel, Price, and Co.) have also, for the excellence of their fuel, been awarded the silver medal. It will be within the recollection of our readers that this company a short time since supplied for the use of the Admiralty the largest quantity of patent fuel ever purchased by them, and it is gratifying to note amid the general depression of trade that the demand for their brand is so great that, working day and night for the greater part of the year, the company have been obliged to decline many remunerative orders. In order to meet the great demand for their fuel they contemplate increasing their capital and extending their works.

Mr. John Chubb, manager of the Dinas Colliery, was charged at Pontypridd with neglecting to carry out the provisions of No. 2 of the General Rules of the Mines Regulation Act. Mr. Tom Williams, Merthyr, instructed by Mr. Galloway, Assistant Inspector of Mines for South Wales, prosecuted. Mr. Simons, instructed by Mr. C. H. James, defended. The defendant had been previously charged with another violation of the colliery rules, and a fine of 10l. was inflicted. The present charge was that he neglected his duty with regard to the provisions of No. 2 rule, which laid down that a "manager should do all in his power to see that the reports and records were duly made by the fireman appointed for the purpose." Mr. Galloway was called, and said he visited the Dinas Colliery on the 14th, and found a considerable accumulation of gas in a hard heading. He examined the books at the colliery, but could find no entry in them showing the state of that way. Mr. Simons said he could not admit that there had been omissions to duly record the results of the fireman's visits, but that was a neglect of the fireman, as it was his duty to make the records, and it could never be expected that a manager could see to the carrying out of every detail connected with the working of a colliery. The stipendiary thought it was one of the duties of the colliery manager to see that the fireman duly made the records required. Mr. C. H. James said he was the consulting engineer to Col. Hunt's colliery. He prepared the plans and kept Col. Hunt informed as to the progress of the work. He frequently saw the registers kept at the colliery, and he sometimes examined them. The defendant, Chubb, had discovered the omission of the 14th, and Lewis, the fireman, had been reprimanded for it. After considerable further discussion, the Bench took some time to deliberate, and the stipendiary said they were of opinion that under the extenuating circumstances of the case they could not inflict a fine on the manager, but they would, in fact, the full penalty on the fireman, who was to blame. He was fined 2l. and costs.

Date.	Mines.	LEAD ORES.	Price per ton.	Purchasers.
Sept. 7.—De Broke	20	2 9 16 0	Weston, Son, and Co.
12.—Talargoch	60	11 5 6	Walker, Parker, and Co.
Maesyreuddu	50	11 7 6	ditto
Coetia Llys	100	10 8 6	ditto
—North Hendre	40	9 6 0	ditto
—East Pant Du	25	10 1 6	ditto
—Rhyd Alun	15	9 8 6	Adam Eytton.
—Clwt Milidra	40	15 4 0	Nevill, Druce, and Co.
13.—South Daren	40	15 4 0	

Date.	Mines.	BLEND.	Price per ton.	Purchasers.
Sept. 11.—Talargoch	110	2 3 12 0	Dillwyn and Co.
—ditto	110	3 12 0	Vivian and Son.

Date.	Mines.	BLACK TIN.	Price per ton.	Amount.	Purchaser.
Sept. 4.—Wheal Coates	6 0 0 10	£33 15 0	—	Daub.
9.—West Godolphin	15 5 1 3	30 12 6	—	—

ROYAL SCHOOL OF MINES, DEPARTMENT OF SCIENCE AND ART.

During the TWENTY-EIGHTH SESSION, 1878-79, which will commence on the 1st of October, the following COURSES OF LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1. CHEMISTRY	By E. FRANKLAND, Ph.D., F.R.S.
2. METALLURGY	By JOHN PERCY, M.D., F.R.S.
3. NATURAL HISTORY	By T. H. HUXLEY, LL.D., F.R.S.
4. MINERALOGY	By WASHINGTON W. SMYTH, M.A., F.R.S., Chairman.
5. MINING	By JOHN W. JUDD, F.R.S.
6. GEOLOGY	By T. M. GOODVEE, M.A.
7. APPLIED MECHANICS	By FREDERICK GUTHRIE, Ph.D., F.R.S.
8. PHYSICS	By Rev. J. H. EDGAR, M.A.
9. MECHANICAL DRAWING	By Rev. J. H. EDGAR, M.A.

The Lecture Fees for Students desirous of becoming Associates are £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratory. Tickets to separate Courses of Lectures are issued at £3 and £4 each. Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices. Science Teachers are also admitted to the Lectures at reduced fees. For a Prospectus and information apply to the Registrar, Royal School of Mines, Jermyn-street, London, S.W. TRENHAM REEKS, Registrar.

CORNWALL.

FELSPAR AND CHINA CLAY, both of the purest quality, can be SUPPLIED, delivered at FOWEY or RUNCORN. Apply to WILLIAM SALMON, Mining Agent, 22, Queen-street, Ulverston.

FOR SALE, a 48 ft. WATER-WHEEL, 6 ft. breast, with cast-iron rings, wood arms, backing, risers, and buckets, all firmly bolted together; massive cast-iron centre, bearings 18 in. long by 16 in. diameter; two cast iron sockets, bored to fit the shaft; two pedestal brasses and bed plates; two massive cast iron cranks, bored to fit the shaft, and keyed on with three bolts to vary the length of the stroke from 9 ft. downwards. This wheel has two connecting rods, one on each side of the wheel, meeting at one point about 20 yards from the wheel; this connection is carried by a double traveller, which also acts as a balance bob; the end of the connection is carried by a strong wrought-iron cross head on a pair of wheels. The 3½ in. wrought-iron rods are connected to the centre of the cross-head. There are about 30 yards of wood ladders, to carry the water on the wheel; 280 fms. of 3½ in. round wrought-iron rods, with hammer iron pins in joints, each rod 82 ft. long, with 58 peys to carry the rods, with hammer iron gudgeons. At the end of the pumping-rods is connected a strong pumping-bob, with 18 in. timber strapped with wrought-iron plates, cast-iron caps, wrought-iron gudgeon, pedestals, &c., complete; with first piece of main rods, with wrought-iron straps, brasses, &c., complete. The wrought-iron work in this wheel and also the cast-iron is in first-class condition. Apply to E. J. BARTLETT, 30, Great St. Helen's, London, E.C.

THE CAPE COPPER MINING COMPANY (LIMITED).

Notice is hereby given, that at a MEETING of the directors of this company, held to-day, it was resolved:— "That a DIVIDEND of SEVENTEEN SHILLINGS and SIXPENCE PER SHARE, free of income tax, be and is hereby DECLARED, PAYABLE on the 30th day of September instant to the shareholders on the books of the company on the 19th instant; and that the Transfer Books be closed during the said 19th instant." By order of the Board, J. C. LEAVER, Secretary.

6, Queen-street-place, London, 11th September, 1878.

M. R. TIMOTHY HUGHES, MINING AGENT AND SHAREDEALER, 59, SEEL STREET, LIVERPOOL.

Reliable information given respecting Welsh and Manx Mines.

CAPTAIN ABSALOM FRANCIS, MINING AGENT, ENGINEER, AND SURVEYOR, GOGINAN, ABERYSTWYTH. FOUR MINES CERTAIN FOR A RISE.

TORQUAY MAIN DRAINAGE.

MR. GEORGE HODGE has received instructions from the Torquay Local Board to OFFER FOR SALE, BY PUBLIC AUCTION, on Tuesday, Wednesday, and Thursday, October 1st, 2nd, and 3rd, 1878, and following day (if necessary).

THE WHOLE OF THE PLANT

USED IN CONSTRUCTING THE ABOVE WORKS, AT A COST OF £70,000, COMPRISING—

Two sets gin harness: 1 timber carriage; 1 2½ ton Chaplin's patent lifting and swivelling STEAM CRANE, mounted on cast iron bed and railway wheels, 4 ft. 8½ in. gauge; ONE 4 horse power STEAM WINDING AND PUMPING ENGINE, complete, on travelling wheels; ONE double-acting STEAM PUMP, 10 in. diameter steam cylinder, 4 in. diameter water cylinder, and 10 in. stroke; ONE vertical STEAM BOILER, 8 ft. 6 in. high, and 3 ft. 4 in. in diameter, ONE ditto, 7 ft. 3 in. high, and 3 ft. in diameter; ONE egg-ended BOILER, 15 ft. long, and 3 ft. in diameter; ONE portable MORTAR MILL, pan 5 ft. diameter, with BOILER and STEAM ENGINE, combined, mounted on wheels; ONE MORTAR MILL, pan 7 ft. in diameter, and the necessary driving gear; TWO FORCE PUMPS, barrels 4 in. diameter, and 4 ft. stroke, with cast iron wrought iron rods, guides, &c.; ONE vertical OLE PUGGING MILL, 4 ft. high, and 1 ft. in diameter; ONE CEMENT TESTING MACHINE; 10 tons wrought iron bridge rails, 40 lbs. per yard; 4 tons ditto, 38 lbs. per yard; 40 tons ditto, 22 lbs. per yard; 9 tons ditto, 17 lbs. per yard; 9 tons cast iron pipe, 18 in. in diameter; 8½ tons ditto, 3 in. in diameter; four contractors' slide tip railway wagons, 4 ft. 8½ in. gauge; various tunnel wagons, trolleys, skips, blow fans, wooden sleepers, &c.; engine fitters' and smiths' tools, including anvils, vices, portable forges, &c.; 1 crab; various chains, wheelbarrows, 1 theodolite.

ROCK BORING MACHINERY.

Four 2½ in. cylinder improved patent Ingersoll self-feeding Rock Boring Machines; 1 tripod stand, with telescope legs and weights; 3 tunnel columns, each 3 in. in diameter, 7 ft. long; 1 ditto, 3½ in. in diameter, and 6 ft. 6 in. long, with lengthening screw; 3 sets of clamps for 3 in. columns, fitted with bolts and nuts; 1 ditto ditto for 3½ in. column; 450 ft. length of India-rubber steam hose, covered with tarred yarn, and fitted with gun metal couplings, complete.

ONE PATENT STURGEON'S HIGH SPEED AIR COMPRESSOR, With 1 steam and 1 air cylinder, each 6½ in. diameter, and 9 ft. stroke, mounted on cast iron receiver, complete; 1 Sturgeon's patent high speed Air Compressor, having 2 steam cylinders, 6½ in. in diameter, and 1 air cylinder, 8½ in. in diameter, and 9 in. stroke, mounted on cast iron receiver, complete; 15 18 in. water pipes.

A QUANTITY OF PITCH PINE PLANK, of various descriptions; pine baulk, sundry timber, 700 7 ft. sleepers, 1944 planks, 4 ft. by 2 in.; large quantity of ribs, varying from 6 ft. to 7 ft., for concrete and bricks; sundry drums for pits, 5 ft. diameter; ditto sewer drums, from 2 ft. to 7 ft.; quantity of water casks, large quantity of block legging and legs for brickwork; sheer legs; pile driving machine; quantity of well seasoned ash plank, ranging from 2, 2½, 3, 3½ in.; quantity of oak spokes, ash pick and hammer shafts; 1 in. match boarding; deals, 1½ in. and 2 in.; quartering, 2 by 3, and 3 by 4; roofing felt, sheer legs, ladders, scrap iron, cast iron, jumpers, bars, steel striking hammers, navy shovels, spades, pickaxes, gas tongues and clips, cast iron bearings, brass ditto, various spanners, quantity steel and iron striking hammers, sheet zinc, rope, fuse, dynamite, bolts and nuts, tunker dogs, full set taps and dies, set ditto for pipes, nails, files, washers, wheels, oil cans, oil in cask, lathes, pulley wheels, double, single and treble blocks, switch blocks, wire sleeves, wheel boxes, bolt and hoop iron, rod ditto, iron and zinc buckets, wagon grease, wheelbarrows, Rail's jack, pumps, 5 in. and 6 in., with slides and strainers, tar paulin, shovels, workshops, fencing, tubing, steel bar, octagon, ¾ in. and 1 in.; box of candles, Salter's balance up to 335 lbs., steel and iron rope, large water tank, blowers and fittings, box and stock tools, &c.

Sale to commence on Tuesday at Eleven o'clock prompt, at the New Sea Road, Meadfoot, and on Wednesday, and following days, at the Torbay Road, at the same hour.

Catalogues 1s. each, not returnable, may be had of the Auctioneer six days prior to the sale.

On view the Saturday and Monday prior to the sale.

Dated 4th, Strand, Torquay, September 10th, 1878.

PEMBROKESHIRE.

SALE OF VERY VALUABLE FREEHOLD FARMS AND VILLS OF SLATE IN THE PARISH OF LLANRIAN.

MESSRS. GOODE AND OWEN have been favoured with instructions to OFFER FOR SALE, BY PUBLIC AUCTION, at the Castle Hotel, Haverfordwest, on Saturday, the 21st day of September next, at Two for Three o'clock, the following

FREEHOLD PROPERTY,

In Two Lots—viz.,

Lot 1.—The very valuable and important FARM OF BARRY ISLAND, otherwise ISLAND OF BARRY, comprising a capital Dwelling House, with commodious and substantial Farm Buildings, all in good repair, and 322 A. 2 R. 16 P., or thereabouts, of very rich and productive Arable and Pasture Land, the whole being held by Mr. William Reynolds, under a lease for two (surviving) lives, aged respectively 57 and 63 years, or thereabouts, at the very low yearly rent of £223. This lot contains very extensive and valuable VILLS OF SLATE AND SLAB.

Lot 2.—The rich and productive FARMS OF VELINDRE and LLANRIAN, consisting of 184 A. 3 R. 27 P. of very rich and productive Arable, Meadow, and Pasture Land, with a substantial Farm House and Outbuildings, all in good repair, and held by the representatives of Mr. John Prosser, under a lease for two (surviving) lives, aged respectively 65 and 40, or thereabouts, at the very low yearly rent of £220; also the Dwelling House and Premises, called the Croft House, in the village of Llanrian, held by Mrs. Rachael Morgan under a lease for three lives, aged respectively 65, 29, and 28 years, or thereabouts, at the yearly rent of £1; and a Cottage in the occupation of Mr. James Griffiths, or his under-tenant, at the nominal rent of 6d.

Printed particulars and lithographic plans are in course of preparation, and, with any further information required, may be obtained of Messrs. GOODE and OWEN, Estate Agents; of Messrs. DAVIES and CO., Solicitors; and Messrs. J. and E. EATON EVANS, Solicitors; all of Haverfordwest.

21st August, 1878.

VALUABLE SHARES IN ASHINGTON COLLIERY FOR SALE.

MESSRS. DAVISON AND SON are instructed to SELL, BY AUCTION, at the Law Society's Rooms, Royal Arcade, Newcastle-on-Tyne, on Wednesday, 18th September, 1878, at Three o'clock in the afternoon, TEN (32nds) SHARES IN ASHINGTON COLLIERY,

NORTHUMBERLAND.

Well known for its flourishing character. The valuable royalties embrace an area of 3600 acres, the larger portion of which are held under a lease (of which 25½ years or thereabouts are unexpired), at an exceedingly moderate rent; the remainder of the royalties are the property of the company.

The coal is a first class steam coal, of which there are three seams, only one of which is at present being worked, and the output averages about 1000 tons per day. In addition to the main seam, which is now being worked, a shaft has also been sunk to the Yarn Seam, which has as yet only been worked a few yards from the shaft. There are also valuable seams of fire clay.

The coals are shipped at Tyne Dock, which is the chief place of shipment on the Tyne, at a comparatively small cost.

There are six shafts in all, two of which go to the Main Seam and two to the Yarn Seam. The shafts are 13 feet in diameter.

The Plant and Machinery for drawing the coal and working the pits are of the most complete description, and the investment is one well worthy of the attention of capitalists.

Further particulars of the Auctioneers; of C. J. GARBUTT, Esq., Solicitor, 2, Colingwood-street; and F. R. GODDARD, Esq., Messrs. Messers. Messers. Goddard, Millar, and Co.; St. Nicholas Buildings, both in Newcastle-on-Tyne.

Academy of Arts, 41, Blackett street, Newcastle-on-Tyne.

LEAD, &c., MINES IN MERIONETHSHIRE.

GLAN CLWYD LEAD MINING COMPANY.

(LIMITED).

MESSRS. DEW AND SON WILL SELL, BY AUCTION, at the Owen Glyndwr Hotel, Corwen, on Saturday, the 28th day of September, 1878, at Two o'clock in the afternoon, subject to conditions of sale to be given, the ESTATE and INTEREST of the above company, under an Indenture of Lease (of which about 25 years are unexpired), of and in certain lands, &c., in or under certain lands and premises situated at Clegh Mawr and Bryn Halen, in the parish of Gwyddelwern, in the county of Merioneth, containing together measure 247 A. 1 R. and 3 P. or thereabouts.

In addition to the premises, including a 40 ft. WATER-WHEEL, with segment, &c., for working patent self acting jiggers; a BLAKE'S (or Marsden's) STONE BREAKER, and other appliances for carrying on the mine.

The Derwen Station, on the Rhydy, Denbigh, and Corwen Railway, is within two miles of the mines.

Authority for examining the property can be gotten, an inspection of the lease had, and a print of the particulars and conditions of sale, with any further information, obtained from the Auctioneers, at Bangor; the Liquidator, Mr. C. E. WILSON, 5, Stone-wall-terrace, Chesham Hill; or Messrs. BRETT and CRAVEN, Solicitors, 3, Kennedy-street, Manchester.

TO CAPITALISTS.

FOR SALE, A SILVER-LEAD MINE, over eight square miles in extent, averaging for nine years consecutively a produce of nearly 600 tons of lead ore (produced in 1877, 575 tons), complete with new pumping machinery, with all mechanical dressing floors, laboratory, offices, &c., &c. Large reserves, shallow depth, cheap labour, and materials. Good markets. Rights in perpetuity. Light dues (nominally 1-50th only). Good situation. Easy price and terms.

Address, "Alpha," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

TO INVESTORS.

FOR SALE, A FIRST-CLASS SLATE QUARRY. FOR SALE, THE WHOLE OR A PORTION OF A FIRST-CLASS SLATE QUARRY, in DEVONSHIRE (area about 13 acres). The slate is pronounced by competent judges to be equal to Delabole. Steam machinery, with all appliances and plant for working the quarry, are on the ground. This quarry has been surveyed, drawings prepared, and most favourably reported upon by one of the first engineers of London connected with the Welsh at their disposal, and the strictest investigation permitted.

Apply to F. R. STANBURY, Solicitor, 13, Princess-square, Plymouth.

In the High Court of Justice—Chancery Division.

IN THE MATTER OF THE BOWERS ALLERTON COLLIERIES (LIMITED), AND IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867.

IN PURSUANCE of an Order of His Lordship, the Master of the Rolls, TENDERS will shortly be INVITED (unless previously disposed of by private contract) for the IMPORTANT LEASEHOLD COLLIERIES, called the BOWERS ALLERTON COLLIERIES (LIMITED), held on lease, of which upwards of 15 years are unexpired, situated in the parishes of Knap and Swilington, near Leeds, in the county of York, together with the COLLIERY PLANT, AGENTS' and WORKMEN'S HOUSES, and the several wharves and staiths belonging to the company.

Particulars will be shortly ready, and with conditions of sale and forms of tender may be obtained on and after a day which will be fixed by a subsequent advertisement, on application to Messrs. PATTERSON, WIGG, and CO., Solicitors, 11, Queen Victoria-street, London; Messrs. LAMBERT, FRETCH, and SHAKESPEAR, Solicitors, 8, John-street, Bedford-row, London; Messrs. SHUM, CROSSMAN, and CO., Solicitors, 3, King's-road, Bedford-row, London; and in the country of Messrs. DIBB and CO., Solicitors, Leeds; of the Official Liquidators, Boat-lane, Leeds; and of Mr. GEORGE ARMSTRONG, Solicitor, Newcastle-on-Tyne.

Orders to view can at once be obtained by written application to the Official Liquidators.

In the High Court of Justice—Chancery Division.

FORSTER v. FORSTER.

IMPORTANT AND VALUABLE COLLIERIES AND LIMESTONE QUARRIES FOR SALE.

IN PURSUANCE of an Order of His Lordship the Master of the Rolls, TENDERS are INVITED for the PURCHASE, in One Lot, of the IMPORTANT LEASEHOLD SEASIDE COLLIERIES, called EAST HETTON COLLIERY, comprising 2740 acres or thereabouts; and TRIMDON GRANGE COLLIERY, comprising 854 acres or thereabouts; also the adjacent VALUABLE RAISBY HILL LIMESTONE QUARRIES and LIME WORKS (principally leasehold, but partly freehold); also, a FREEHOLD ESTATE and LANDS, comprising about 144 acres, all situated near Hartlepool, in the county of Durham, together with the COALFIREY PLANT, COALHITS, ENGINE-HOUSES, locomotives, machinery, railways, screens, stored materials, live and dead stock, coke ovens, agents' and workmen's houses, workshops, granaries, quarry stock and chattels.

The collieries are in connection with the Hartlepool branch of the North-Eastern Railway Company's system, being respectively within 14 and 10½ miles of the port of Hartlepool, and 16 and 12½ miles of West Hartlepool, and are also in connection with the main line at Ferry-hill, from which they are respectively five and six miles distant, and are thus well situated for sending their produce to the southern markets, to the Tyne, Sunderland, Middlesbrough, and Cleveland, or over sea.

The quarries are in full operation, and the limestone is well known in the market, and is now extensively used in some of the largest ironworks in this district and in Cleveland, and is also largely used for chemical purposes, and the proximity of the works to the North-Eastern Railway facilitates the delivery of large quantities at all times with the utmost promptitude and regularity.

Tenders to be sent (in a sealed cover, marked in the corner "Forster v. Forster") to CHARLES BURNES, Esquire, the Chief Clerk of His Lordship the Master of the Rolls, at his chambers, No. 10, Chancery-lane, London, on or before the 31st day of October, 1878.

Particulars, plans, conditions of sale, and forms of tender, may be obtained on application to Messrs. TRINDERS and CURTIS HAYWARD, Solicitors, 4, Bishopsgate-street Within, E.C.; T. W. DENBY, Esq., 8, Frederick's-place, Old Jewry, E.C.; J. ANDERSON ROSE, Esq., 11, Salisbury-street, Strand, W.C.; G. B. FORSTER, Esq., Backworth, Newcastle-on-Tyne; W. O. WOOD, Esq. (the Viewer), East Hett Colliery, Coxhoe, County Durham; MATTHEW FORSTER, Esq. (the Receiver), 1, Doctor Johnson's-buildings, Temple, E.C.; and R. F. MATTHEWS, Esq., Seaton, West Hartlepool.

Orders to view can be obtained by written application to Messrs. TRINDERS and CURTIS HAYWARD, or G. B. FORSTER, Esq.

In the High Court of Justice—Chancery Division.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867;

AND IN THE MATTER OF THE CAPE BRETON COMPANY (LIMITED).

CAPE BRETON, NOVA SCOTIA.

THE CAPE BRETON RAILWAY, constructed five years ago, in fair working order, commencing at Lormay Junction and terminating at Sydney Harbour, where there is a strong, well-built wooden pier, 583 ft. long by 43 ft., having four railway tracks, two turn-tables, and fire coal shoots on it, and affording facilities for the loading of three vessels at one time. The harbour of Sydney has long been well known and used both as a shipping port and a port of call. Also, the Line of Boundary from Lormay Junction to Louisburg Harbour, where there is a splendid pier, and when finished will be 640 ft. by 40 ft., with a depth of water all round of from 25 to 34 ft. The harbour is a very fine one, being easy of access and open all the year, together with the MACHINERY PLANT, DWELLING HOUSES, OFFICES, MACHINE SHOPS, ENGINE HOUSES, and all other outbuildings. Also, the valuable FREEHOLD and long LEASEHOLD MINERAL PROPERTY, extending over an area of five square miles, with the COLLIERIES opened thereon, known as THE RESERVE, producing a very excellent quality of coal both for steam and domestic purposes, and containing about 7,455,985 tons. The mine can be got ready for work at a fortnight's notice, the full output capacity being 300 tons per day. The EMERY, producing a very good steam and domestic coal, which during the time it was in the market gained a high reputation, containing 3,995,564 tons. This mine can also be put in working order at a fortnight's notice, and can turn out 200 tons per day. Also, the LORWAY AREA (not yet worked), reported to contain 2,114,766 tons of excellent coal; together with all the appliances for mining, handling, and shipping coal at the two first-named mines on and under the surface.

MR. GEORGE TRIST (of the firm of NORTON, TRIST, WATNEY, and CO.) WILL SELL, BY AUCTION (with the approbation of Vice-Chancellor MALINS), at the Mart, London, on Friday, the 25th day of October next, the above described valuable

COAL MINES AND RAILWAYS,

Together with all their appurtenances, first in One Lot, and if not so sold then in Three Lots, as follows:—

Lot 1.—The RESERVE, EMERY, and LORWAY COAL MINES, together with all PLANT and MACHINERY.

Lot 2.—The RAILWAY from LORWAY JUNCTION to SYDNEY, about 10 miles in length; the PIER at SYDNEY HARBOUR; and the PLANT and ROLLING STOCK and appurtenances thereto.

Lot 3.—The RAILWAY from LORWAY JUNCTION to LOUISBURG, about 20 miles in length; the PIER at LOUISBURG; and the PLANT, ROLLING STOCK, &c.

Particulars, with plan, may be had of Messrs. NORTON, ROSE, NORTON, and BREWER, Solicitors, 24, Coleman-street, E.C., and 6, Victoria-street, Westminster; of Mr. SAMUEL LOWELL PRICE, of 44, Gresham-street, London, E.C.; and Mr. FREDERICK WHITNEY, of No. 8, Old Jewry, London, E.C., the Joint Official Liquidators of the above company; and of Messrs. NORTON, TRIST, WATNEY, and CO., 62, Old Broad-street, London, E.C.

SOUTH WALES, CARDIGAN.

IMPORTANT MINING PROPERTY, with PLANT and MACHINERY.

IN THE HIGH COURT OF JUSTICE, CHANCERY DIVISION—RE THE GREAT WEST VAN LEAD MINING COMPANY (LIMITED).

MESSRS. BAKER AND SONS WILL SELL, BY AUCTION, at the Mart, Tokenhouse-yard, Bank of England, on Friday, October 18, in One Lot, by direction of His Honor the Master of the Rolls, all that valuable PROPERTY known as the

GREAT WEST VAN LEAD MINE,

Situate in the parish of Llansadwr Fawr, in the county of Cardigan, on the high-road, midway between Llanidloes and Aberystwyth. It contains a vast amount of ore, with a surface area of 720 acres, or might, at a comparatively small outlay, be rendered a most lucrative speculation.

The sale will include all the valuable PUMPING and other MACHINERY, together with the expensive PLANT and IMPLEMENTS appertaining to the mine, the whole being in excellent working order.

Particulars and conditions of sale may be had of JAMES WADDELL, Esq., Public Accountant (the Official Liquidator), 11, Queen Victoria-street, E.C.; of J. JOHNSON WINNER, Esq., Solicitor, 70, Chancery-lane, W.C.; of Mr. W. BRAMWELL, at the Mine; and of the Auctioneers, 11, Queen Victoria-street, E.C.

HINGSTON DOWN, IN THE COUNTY OF CORNWALL.

IMPORTANT SALE of a VERY VALUABLE FIRE-BRICK and FIRE-CLAY WORKS, with immediate possession, within 2½ miles of Calstock and the navigable River Tamar, and ¼ mile from the siding of the Cornwall Minerals Railways, and 7 miles from Tavistock.

MESSRS. ANDREW AND SON are instructed to OFFER FOR SALE, BY PUBLIC AUCTION, at the Bedford Hotel, Tavistock, on Wednesday, September 25, at Three P.M., subject to such conditions as will then be produced, and can be seen at the offices of the undermentioned solicitors seven days previous to the sale, in One or more Lots (as may be determined on at the time of sale), ALL that VERY VALUABLE PROPERTY, with ENGINES and PLANT, now worked and known as the

CALSTOCK FIRE-BRICK and FIRE-CLAY WORKS

COMPANY (LIMITED).

Extending over 23 acres of land, which is copyleft of the Manor of Calstock. The whole of the subsoil of the land is a bed of clay of excellent quality. The bricks and tiles manufactured by this company are well known as affording great resistance to frost and heat, and the fire-bricks are stated to be capable of standing a greater heat than the Stourbridge and other well-known bricks, and are greatly in demand.

The whole of the kilns, flues, and drying sheds, which are substantially constructed, have been erected with a view of producing first-class bricks and tiles at the smallest possible cost.

The machinery, made especially for these works, and put in place partly by the well-known firm of Nicholls and Williams, Tavistock, is in capital working order, and capable of producing about 20,000 bricks per day; and the manager's house and offices, with weighing machine, render the whole works very complete.

The situation of the property is very favourable for carrying out the manufacture of fire-bricks and tiles, as the distance from the navigable River Tamar is only 2½ miles.

Printed particulars and plans will shortly be published, and can be obtained of the Auctioneers, 5, Courtenay-street, Plymouth; of Messrs. KELLY and WOLFE-STAN, Solicitors, Plymouth; or of Messrs. MAXWELL and WELDON, Solicitors, Dublin.—Dated July 22nd, 1878.

OCHRE FOR SALE.

ABOUT SIXTY TONS of WASHED. Now ready. Price low for the lot.

Apply to Mr. WOODWARD, Mining Offices, Truro.

FOR SALE, A LARGE ASSORTMENT of 2, 3, 4, 5, 6, and 7 inch CAST-IRON SOCKET PIPES, tested up to 300 lbs. pressure—CHEAP, FOR CASH. In Four-ton Lots, or over.

Apply, THOS. READ and Co., Ironfounders, Malton, Yorkshire.

THE "MIDLAND" HORIZONTAL ENGINES, new splendid design, and best construction.

4-horse power ENGINE, 6½-inch cylinder 10-inch stroke, with throttle valve, fly wheel (turned face), governor, feed pump, and double crank, with two bearings to shaft, which is made to take pulley or fly wheel on either right or left side. Price, £25.

Other sizes proportionately cheap.

ALEXANDER SMITH,

ENGINEER, DUDLEY.

ON SALE,—108 yards 15 inch diameter PUMPS, with delivery pipes. Bucket, door pieces, working barrels, windboxes, slide pipes and nozzle, two pumping beams, two rocking legs, spur wheels, &c., making a complete set, and which have only been in use twelve months.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

ON SALE,—20 end and 5 side TIP WAGONS, 4 ft. 8½ in. gauge, in good working condition.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

ON SALE,—ONE 6 feet diameter SCHIEFFEL'S PATENT BLOWING and EXHAUSTING FAN, with one 9 in. diameter cylinder, horizontal steam engine, with pedestal plates, &c., complete, in excellent condition.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

BARYTES.—FOR SALE, A MOIETY of a RICH BARYTES MINE, thoroughly proved.

The barytes is of the finest quality, the quantity practically inexhaustible, and commands a ready sale.

In addition to the above, there are valuable lead lodes in the property.

Address, "Barytes," MINING JOURNAL Office, 26, Fleet street, London, E.C.

18 H.P. PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery; also gear for wind and pump.

A 9-hp. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

Apply to—BARROWS and STEWART, ENGINEERS, BARN-

PERFORATED PLATES,

For all MINING and MECHANICAL PURPOSES, in IRON, STEEL, CAST STEEL, ZINC, COPPER, and BRASS.

Delivered, carriage free, to any English Port on the East Coast.

Price List gratis and prepaid.

S. GRAY, ENGLISH ENGINEERING AGENCY AND

MACHINERY DEPOT, COLOGNE, GERMANY.

LOCOMOTIVE TANK ENGINES

FOR MAIN LINE TRAFFIC, SHORT LINES COLLIERIES,

CONTRACTORS, IRONWORKS, MANUFACTORIES, &c., from a superior specification, equal to their first-class Railway Engines, and special adapted to harpours and heavy gradients, may always be had at a short notice from—

MESSRS. BLACK, HAWTHORN, AND CO.,

LOCOMOTIVE, MARINE, AND STATIONARY ENGINE WORKS,

GATESHEAD-ON-TYNE.

THE BIRMINGHAM WAGON COMPANY

(LIMITED)

MANUFACTURE RAILWAY CARRIAGES and WAGONS of EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order main tained by contract. MANUFACTURERS also of IRONWORK, WHEELS, and AXLES.

WAGON WORKS,—SMETHWICK, BIRMINGHAM.

TO SHAREHOLDERS, AND INVESTORS IN AMERICAN MINES.

MR. CLARENCE M. BUEL,

CONSULTING ENGINEER AND MINE BROKER,

34, PARK ROW, NEW YORK,

Enjoying unequalled facilities, is enabled to furnish RELIABLE INFORMATION respecting MINES in AMERICA.

A detailed Special Report, based on inspection, furnished of any mine in the United States or Territories upon receipt of \$5.

GOLD, SILVER, COPPER, IRON, COAL, MICA, and CORUNDUM MINES.

IN VIRGINIA, NORTH CAROLINA, GEORGIA, and SOUTH CAROLINA for sale at bed rock prices.

N.B.—A SPECIAL REPORT may save hundreds of pounds.

COPPER KNOB MINE.

TRUE FISSURE VEINS, carrying GOLD 13½ ozs.; SILVER 18 ozs.; COPPER 40 per cent., as per three assays made by well-known and eminent assayers.

ONE-HALF INTEREST in this very VALUABLE PROPERTY.

situated in ASHE COUNTY, NORTH CAROLINA, U.S. AMERICA, can be purchased on the most reasonable terms. One hundred and sixty acres well wooded and watered land; country settled by industrious farmers and mechanics; labour cheap; 17 miles from the celebrated "Ore Knob Mine," where 2 tons of ingot copper is made per day; good roads, stores, churches, and schools in the vicinity; postal facilities at the mine.

For further particulars, address—

CLARENCE M. BUEL, 34, Park-row, New York, U.S.A.

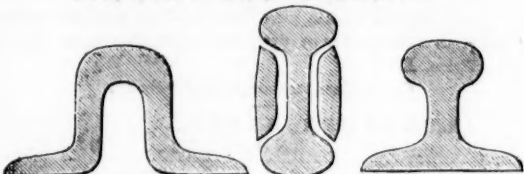
A UNITED STATES PATENT HAS BEEN GRANTED to MR. HENRY SEWELL, M.E., for the REDUCTION or ELIMINATION of SULPHUR from Native Sulphur Ores, without Fuel, Water, or Iron Retorts. These furnaces are made of common stone, costing \$200

ASBESTOS.

A NEW and INDESTRUCTIBLE ASBESTOS PACKING for steam joints and glands, possesses an unusual power of resisting heat, works efficiently under the highest pressure of steam, being practically indestructible. Apply to—

THE PATENT ASBESTOS MANUFACTURE CO. (LIMITED),
31, ST. VINCENT PLACE, GLASGOW,
AND 10, MARSDEN STREET, MANCHESTER.

JOHN BEATSON AND SON, IRONGATE, DERBY.



IRON AND STEEL RAILS, of all sections, from 10 to 82 lbs per yard, new, defective, or second-hand.
POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS, AND SPIKES.

DERBYSHIRE, YORKSHIRE, HEMATITE, SCOTCH, AND COLD BLAST PIG-IRON.

STEEL AND MALLEABLE IRON, of all qualities and sections.
Delivered at all Ports and Railway Stations in Great Britain.

WIRE ROPES.

JOHN AND EDWIN WRIGHT,

PATENTERS.

ESTABLISHED 1770.



MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

Patent Round and Flat Wire Ropes,

From the very best quality of Charcoal and Patent Steel Wire. Galvanised Wire, Ropes for Ships' Rigging, Galvanised Signal and Fencing Strand, Copper Rope, Lightning Conductors, Colliery Ropes and Steam Plough Ropes made from the best Patent Improved Steel Wire.

PATENT ROUND AND FLAT HEMP ROPES,
Hemp, Flax, Engine Yarn, Cotton Waste, Tarpauling, Oil Sheets, Brattice Cloth, Wagon Covers, &c., &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.
UNIVERSE WORKS, GARRISON STREET, BIRMINGHAM.
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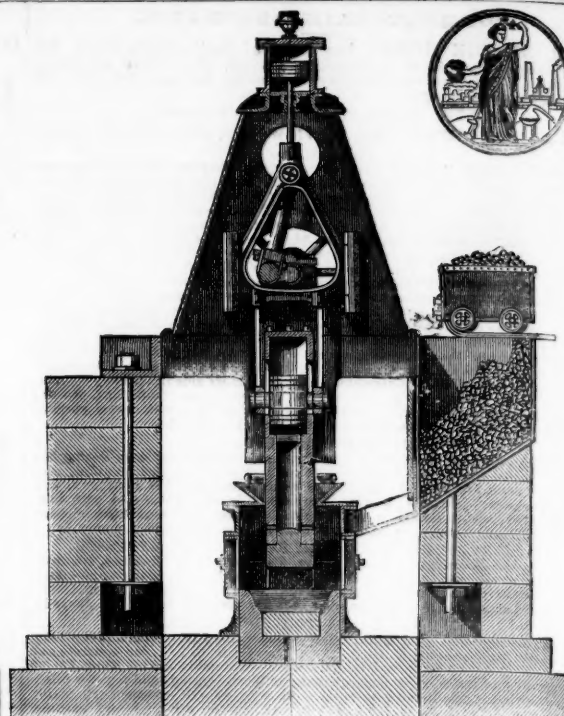
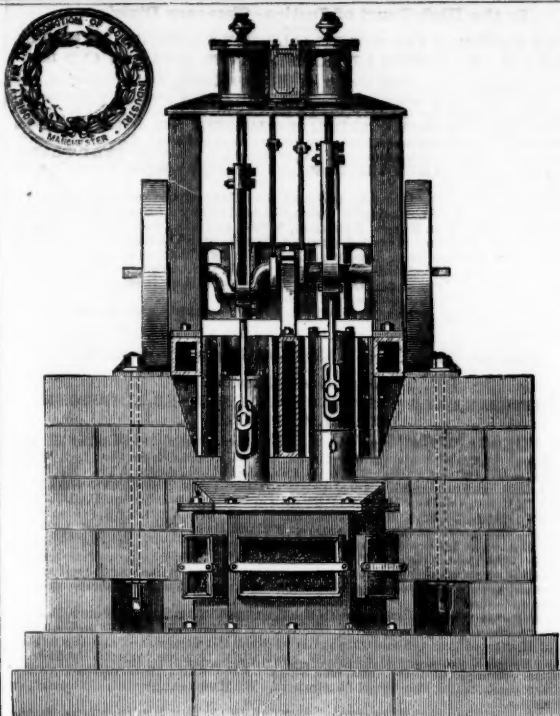
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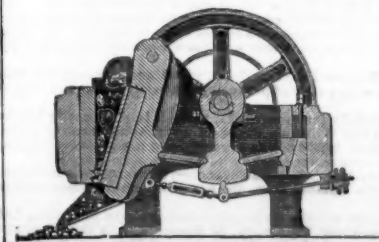
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